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MAY 1952 - 25 CENTS



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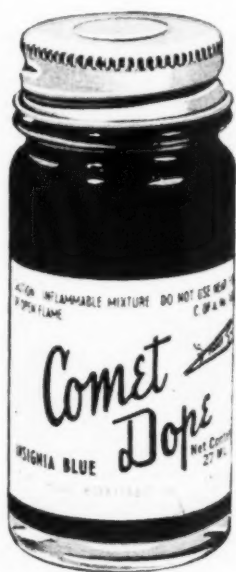
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MODEL AIRPLANE NEWS

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MAY, 1952

VOL. XLVI—No. 3

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4068 Crenshaw Blvd., Los Angeles 43, Calif.

Editorial and Business offices: 551 Fifth Ave., New York 17, N. Y. Published monthly by Air Age, Inc., 1140 East West Highway, Silver Spring, Maryland. Jay P. Cleveland, President and Treasurer; J. P. Johnson, Vice Pres.; G. E. Johnson, Sec. Entered as second class matter Feb. 1951 at the post office at Silver Spring, Md., under the act of March 3, 1879. Additional entry at New York, N. Y. Price 25c per copy to U. S. Subscriptions Rates—Within U. S. only: 1 yr. \$2.50; 2 yrs. \$4.75. In Canada: 1 yr. \$3; 2 yrs. \$5.75. All other parts of the world: 1 yr. \$3.50; 2 yrs. \$6.75. Change of Address—Send to MODEL AIRPLANE NEWS, Subscription Department, 551 Fifth Avenue, New York 17, New York, at least one month before the date of the issue with which it is to take effect. Send old address with the new, enclosing if possible your address label or copy. The Post Office will not forward copies unless you provide extra postage. Duplicate issues cannot be sent.

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by
William
Winter



► Just read in one of the national magazines where storks born east of the Elbe River circle the Mediterranean to the east on their way to winter vacations in South Africa while those born to the west of the river go via Gibraltar. When the guys who make this sort of thing their hobby sneaked some east-of-the-Elbe stork eggs under west-of-the-Elbe birds, and vice versa, the birds that hatched cracked up all over Europe.

► This is not offered as the explanation of eastern modelers finding themselves in a gosh awful fix for new ships this year. But nature also prankishly fouled up the easterners. You know how you build ships all winter long for the spring and summer. This last winter along the seaboard was freakishly mild. We were able to fly virtually every weekend, usually on Saturdays and Sundays both. New ships did not get built. Old ones got more beat up. The winter was spent in mid-week repairs. One terrific springlike weekend tempted less sturdy souls to test fly their gleaming 1952 airplanes. The snapping of wings and crunching of fuselages on the hard ground was something to be remembered. So now we're all in the same boat. The guys that flew in the cold weather still have no new airplanes (including us) and those that didn't don't have them either.

► M.A.N. at Work here goes on record that model builders are not crazy. May even attempt to prove it. From where we sit we can see a guy in a new penthouse. It has glass sides. The business man who operates there has a uniformed chef to serve him snacks. This fascinates everybody whose office is high enough for a seat on the 50-yard line. He also has banks of colored lights that continuously change hue. In the lobby—about half as far from here as you can see a chuck glider—the entire sloped ceiling does the same thing, only it forms figures appropriate to the season. Today, the 14th of February, it is a big red heart.

► So we prefer to spend our dough, such as it is, on model supplies. As a

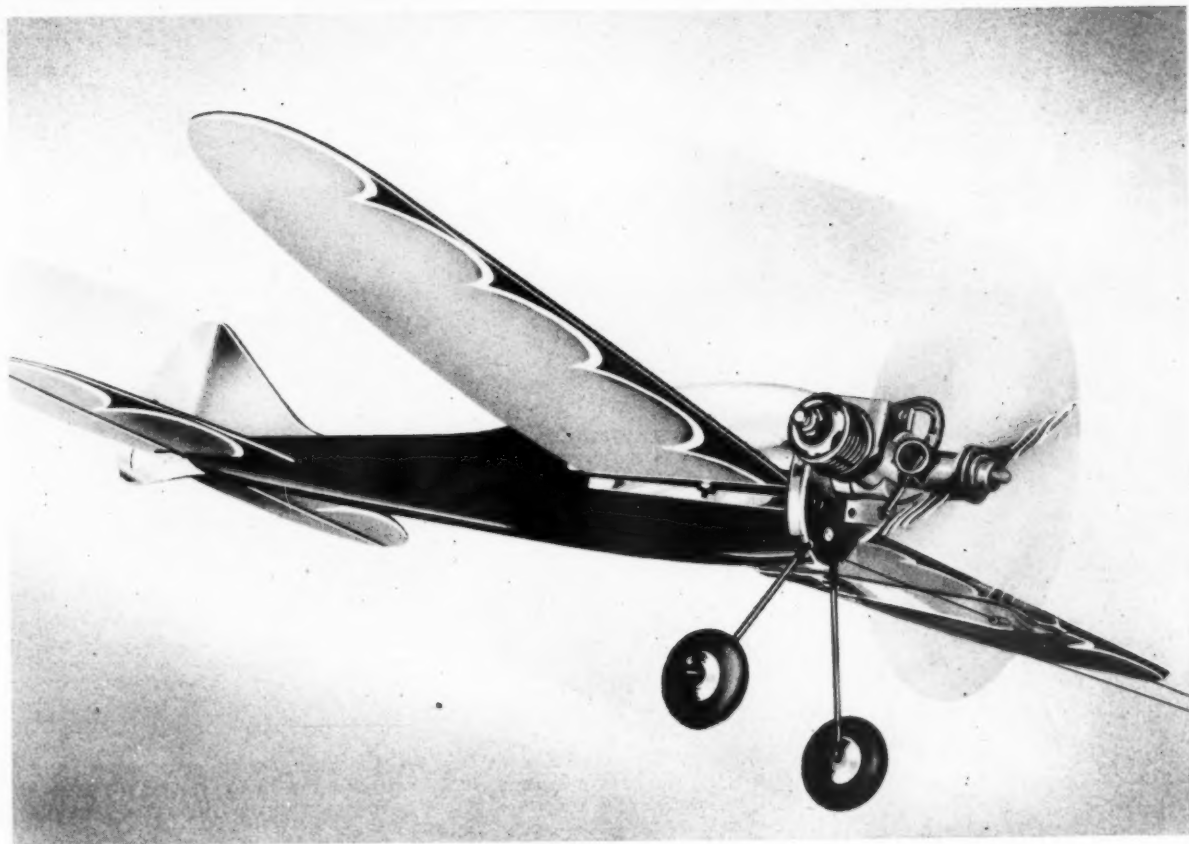
junior we never knew just why we made models except that we wanted to. What better reason is there? Everybody likes to shine. Of course, we think we shine on the field but what modeler really shines in another one's eyes? When two modelers exchange fish stories, each shuts off his receiver and never does hear what the other one says. On the main issue, they are agreed. Get ten or a thousand together on a flying field and they all have everything in common for the magic duration of the session.

► On the field Sunday, M.A.N. At Work was approached by a pleasant looking stranger who said, "In your column last month, you said that guys come to Hicksville even from Jersey." Was he a Prop Spinner who thinks we dislike Wakefields? (We don't). A distraught Jerseyite? Should we tell him we were born there and hope for peace. We said, "SO" Then at twilight we spotted him driving off in a station wagon. Ohio plates!

► "After all the research and correspondence I conducted on this aircraft," says Bob Hare of the Curtiss Racer in this issue, "you can bill this history as the 'first,' 'complete,' 'exclusive,' or any other superlative that would be fitting. While these planes received mention in the press at the time, there never has been such thorough coverage. M.A.N. is performing a historical service in publishing this, and perhaps the fact should be pointed out to its readers."

► Mind if we get serious for a few lines? Bob Hare keynoted this May issue which truly contains from cover to cover just about the finest model articles MAN could lay hands on. Here is George Aldrich with the first of a two-part article on stunt (plans next month). George's airplane is the best non-kit stunter in the country and one of the best regardless. Perhaps you noted the build-up George got this last year in more than one magazine? That he is in M.A.N. is due to the fact that M.A.N. was sufficiently impressed by George's ship and flying both, to ar-

(Continued on page 8)



Jim Walker Announces the A-J FIREBABY with *Supercharged "Royal Spitfire" Engine*

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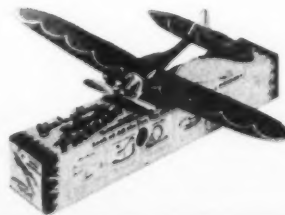
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Scrap ... Box

by Jim Saftig

In his monthly round-up of plane people and plain planes, Mr. Zilch reports things are a-popping.

Wallace Risley, North Manchester, Ind., devised this precise means of watering down that excess power. Worth a try.

► Donald W. Trees, owner of Don's Cycle Shop and Hobby Craft Mart, Racine, Wisconsin, has come up with a novel idea to promote interest in modeling. Don issues "bonus coupons" with purchases. Here's the way it works. Older modelers who make a purchase of 50 cents or over receive one coupon. Younger purchasers receive one for every purchase, no matter how small. For each ten coupons turned in, the purchaser receives a copy of M.A.N.

Don recently mailed copies of M.A.N. to every school in Racine County; also to doctors, lawyers, dentists, hospitals, barber shops, lodges, and clubs. The school and hospital copies were all bound for lasting service with a very substantial covering with "Hobbycraft Don's Bicycle" captioned in the center and a good motto, "Lobby for your Hobby," printed in each corner.

Parents shopping for the youngsters never fail to ask for the coupons. The printing is done with about five dollars worth of rubber stamps. Don has a paper drill and inserts the magazine into the binding, drills three holes, and inserts the clips. Results—a beautifully bound and lasting volume for perpetual and mutual advertising value. Would like to see this idea catch on throughout the country, Don.

Ced Galloway tells us Hi Johnson, deep in the designing business again at Veco, has come up with a towline glider which packs 950 square inches of wing area and weighs about 58 ounces with Citizen Band radio equipment. The glider is called *Don-Yonda* (Indian for Bald Eagle). Much testing has been taking place at Sepulveda Basin. Four

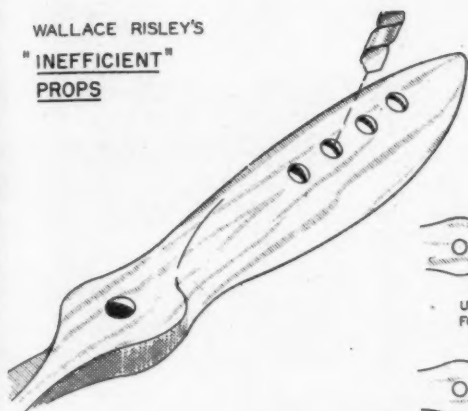
others are in the process of being built, each one with corrections found necessary by flight testing of the prototype.

Ted Enticknap of Auburn, Washington, is carrying on a one-man crusade to get an AA Scale Event included at the 1952 Nationals. He should get together with Bob Moncrief. Ted came from Washington to the Pacific Free-Flight Championships last spring with two carloads of *Gool's*, various sizes, from 9' on down. . . . Jack Oxley has a new 9'1" Original (*sailplane*) which weighs 65 ounces and is powered with a glo-plugged Orwick 64. The reason for the 9'1" is because Jack has to have a bigger job than Bill Daniel's *Gool* which is exactly 9'.

Plans are going ahead for the Annual Spring S.C.M.A. meet, formerly the Pacific Free-Flight Championships, to include U-control and R.C. events. The idea before the S.C.M.A. Council is to hold it on three consecutive weekends—free flight, rubber, and control line. The combination meet, U-control and F.F., is becoming more and more popular and is one shot in the arm that contests have needed. Facilities can be rough to find in some cases but it is good to combine these types of flying at one contest, to give the spectator a chance to see different kinds of flying.

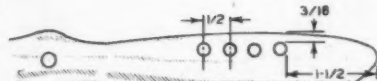
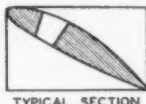
The *Flightmasters* held a "Scramble" contest which disproved statements made by quite a few flyers that they could start their engines with one flip of the prop! The rules were novel: 1—Any type of free flight gas model could be entered; 2—Flying procedure: con-

WALLACE RISLEY'S
"INEFFICIENT"
PROPS

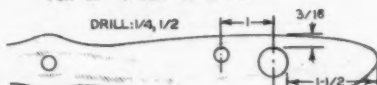


BY DRILLING HOLES IN PROPELLER BLADES PROP EFFICIENCY CAN BE CUT AND FLYING SPEEDS THUS REDUCED FOR TESTING. LAY BLADE ON WOOD BLOCK, DRILL HOLES AT RIGHT ANGLES TO BLADE FACE, BALANCE AS USUAL. FINE FOR TESTING R.C. JOBS, AND STUNTERS.

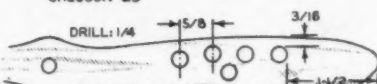
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FOX 35 SPEED 55 M.P.H.



USED ON RADIO CONTROL JOB
OHLSSON 23



USED ON FRESHMAN 20
FOX 35 SPEED 45 M.P.H.
(WITHOUT HOLES 57 M.P.H.)

testant reports to recording table with model fueled and ready to fly; 3—At "scramble" signal, contestant takes model to launching area, starts engine and hand launches model. Time required for this will be recorded as "starting time" and should be as short as possible; 4—Flight is timed as in regular AMA rules (15 second engine run with 10 minute limit); 5—Winner is contestant having highest ratio of flight time to starting time; 6—Three attempts allowed, best single attempt scored; 7—Failure to get model into the air within three minutes of "scramble" signal, constitutes one attempt. No assistance allowed during starting time; 8—Entry fee, 75 cents.

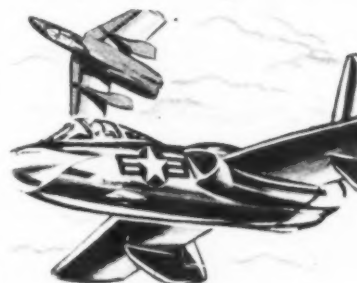
Going back quite a few years, we remember another type of "scramble" contest that used to wow the spectators and contestants alike. Contestants would dismantle their ships (free flight), place the wing, fuselage, and stab in the flight circle. Rubber bands would be placed in their proper places along with fuel and batteries for immediate use. The contestants would then all go to the recording bench. At a signal from the official starter, the contestants would run for their ships, ready them for flight, fuel them up, and get them in the air in the shortest possible time. Engine runs of 15 seconds were used in this deal also. Time was started when the official starter gave the signal. Times were ratioed out in this mad scramble also. Plenty of thrills here!

The Tucson Thermaleers staged a swell combination meet recently. This

self-supporting club of 60 members is affiliated with the AMA. Ray Downs CD'ed the meet with the help of his wife Edith. All classes of F.F., including towline and hand-launched glider events, were included along with U-control stunt and speed. Speed was combined in AB and CD. Hackenburg of El Paso practically made a clean sweep in the F.F. events, and ended up with the beautiful Sweepstakes Award. George Mueller walked off with first in both AB and CD speed. He turned 129.95 and 140.57 respectively in the events. Bob Palmer, Doug Springer, and Dennis Alford made it too tough for the rest of the contestants in the Open stunt event, and they ended up in that order. The judging of the stunt event was done from the center of the circle, which is a very good idea. The Tucson boys made reservations for the out-of-towners and made all hands feel right at home. Denny Davis had a bit of rough luck with his red hot *Beanburner*. He put the ship almost out of sight on his first flight and pulled in a ten-minute time limit with ease. The ship, when gliding in, hit two telephone wires and broke the wing in half. Davis patched it up well enough for two more flights and came in second in B.

Radio jobs can be all sizes. Jim Drevor of Newport Beach brought his 20 ounce modified *Sioux* out to the Miramar strip. Had an Anderson *Royal Spitfire* and carried RK-61 radio. Amused by the comparison of this ship to the giant T-Craft of Leland Rhoads. Rhoads' ship was powered with an Ace 64 Twin and weighed approximately seven (Continued on page 36)

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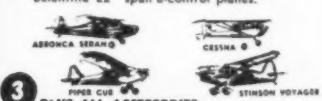
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1/4" SCALE

M.A.N. at Work (Continued from page 2)

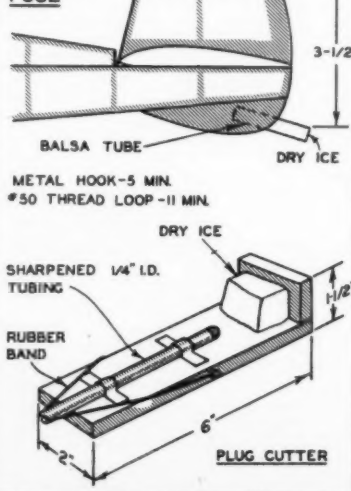
range plans before the last Nationals, which he would have won except for over-run penalty, and before his win at Detroit. Brogini's *Skywing* is a sport version of his contest jobs which have been refined from years of work and dozens of step-by-step experiments as described first in MAN's Jan. 51 issue. Leon "9-G" Shulman pleases team racing fans with a practical job that currently does well over 60 laps on the ounce of fuel. Bonner and Owbridge team up on the compound escapement which will revolutionize rc maneuvers and contests all over the country. E. J. Brown's CQ radio job is a real champ. Anderton's Planes in the News, Air Ways, Williamson's Design Detail, Nieto's Curtiss Racer drawing, complete the best that money can buy. Along with it, there is plenty to read and enjoy, from Jim Saffig's informative reports in Scrap Box to those no-holds-barred letters in Rich and Lean.

▶ Having had much to say about fuse dethermalizers, have some excellent suggestions to offer, thanks to Tom Moore, *Elmhurst Prop Busters*, Oakland, Calif. who told us about one by the *Oakland Cloud Dusters*, and Richard Dunbar, Chicago. Bruce Wennerstrom dashed off two sketches to show how these ideas work. Dunbar's lessens any fire dangers, while the other eliminates it entirely, using dry ice plugs instead of fuses. June Dyer was the first to campaign on the subject, which was reported in Scrap Box a couple of years ago. We earnestly recommend elimination of old style fuses which, in some localities, could cause a situation leading to suppression of free flights thereabouts.

▶ After the crackup: Mirracloth. On huge pre-war rc of Jim Higginbotham's out post-warring with Forster 99. Wonderful covering material. Some kind of paper toweling . . . Radio fans looking for RK-61's drop us a line. Discovered a cache . . . Olin Cooley, 327 Fairview, Montpelier, wants a Thunderbird . . . Heard before Rosenstock flew a 12-pound, five channel rc: if this cracks up be sure to use a wide-angle lens! It bent a landing gear strut. . . Paul Del Gatto moved near Hicksville. He fills car with crates and drives all over the place looking for us Sunday. We went thataway, Paul. . . Ronnie Adler, Pittsburgh. Has two-man contest with buddy in living-room. Identical airplanes, only buddy had a stinker and won hands down. He had swapped airplanes! . . . RC'ers: you'll be interested in huge plan, one side the Javelin, other Windy Joe, both excellent proved planes, good for beginner or for maneuvering. . . Gas attendants always want to see planes on back seat. One old codger wasn't impressed. He made silk covered twin pushers before 1910. An-

(Continued on page 36)

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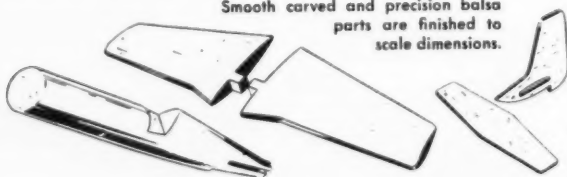
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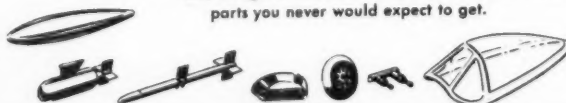
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We Didn't Forget The Kids



When this outfit got to prop-driven planes—the Grant Stability Stick Model—things really popped. Andersen, who started ball rolling, to right.

by Magnus W. Andersen

Here is a program that began in a church summer camp. After models proved hit, the program was tried in church's boys' club, eventually developed into four lively groups.

Clubs, claims the author, must have more than modeling to keep going. Serious, more talented modelers, begin to stand out at start anyway.

► This is a story about how a model building club got started...

Remember your own club when you were a youngster? And how it got its start; how it grew from its infancy of a couple of buddies building together in the cellar to an active, vital group of 40-60 boys of all ages. Remember the enthusiasm? The nights before the big meet when you would be up all night putting the finishing touches on your own special job? Is there any such group in your neighborhood now? No?

What's wrong? Oh, well you see the kids now have the most of the work done for them in these semi-finished jobs ... then this here control line. Could be—but, in reviewing the situation, we learn that most of these clubs broke up during the war years and they never got back to normal. Also, there usually were one or two in the old group who

Brief meetings followed by building period proved answer to youthful impatience. Club has ball team, outfits, even sing sessions, for variety.



did the organizing; got the other boys to "belong."

Perhaps it is up to some of us old-timers to do something about getting a club started. Such a group does not have to be purely a model building club. In fact, although most boys in the age group of, say, 7 through 14, like to "belong" to some club that their buddies belong to, it is necessary to be more than just a model building club to keep it going. There must be some other coordinated effort to hold their interest. Of course most boys are fascinated by airplanes and would like to build them. In some the interest can be developed into a hobby which they will follow for many years and in others it dies a very short, natural death due to other attractions.

The club can have its own ball team, etc., and all the accoutrements, such as sweaters, insignia should be included.

It should also have, as its basis and "real" objective, some of the essentials that seem to have been lacking in the training of many of the men and leaders who themselves were boys only a short time ago. Such words as integrity, honesty, words that are used so easily and have lost their meaning, should be given reality in our contact with young boys. There should be character building as well as model building. I think they have gone hand in hand in the past; the patience and thought entering into building a model; the zest in working towards a goal, and the love of clean competition are all factors that are good to carry over into adulthood.

Many of the model builders have received their basic training, as youngsters, for responsible positions in the aviation industry. However many of them may only have a passing interest in model building and in the short time they are in the club, an attempt must be made to impress upon them the fundamentals that seem to be escaping them from other sources.

This particular club had its infancy in our church summer camp. I was a counselor in charge of handicrafts and decided to try some model airplane kits. It was undertaken with doubts as to its worth due to the short week in which the boys would be working on their models. However, my fears were quickly dispelled. We even had time for a contest. The enthusiasm with which the boys took to it gave me the thought that I should give it a try in a boy's club at our church. It "took" and has since expanded into four separate groups. Our biggest success was at the East Shore homes; barracks left over from the war into which many families are crowded. We had a Sunday School, as a branch of our church, which met at the old PX and starting a club naturally followed. There wasn't any necessity to get a group of boys together—we had a nucleus waiting for us. And speak about a nucleus that attracted other members to it! . . .

We found in our club that it was best to have a preliminary meeting of about a half an hour followed by an hour or so of actual building and a final wind-



For order, everyone builds same model. Right—Though this chap is making cambered, sheet wing, kids can't even cut straight line in beginning. Plan shows the stick model built by the group.

up get-together of 10 or 15 minutes. It is almost impossible to keep them concentrating, sitting still, or quiet for any length of time. Breaking the whole up in this manner is one way of including our "coordinated effort."

The preliminary meeting is perhaps the most important part of the club meeting. You know how boys are. Tell them the club meeting is supposed to start seven sharp and they'll drag in from that time 'til it is time to go home. Each meeting must be planned in order to get them interested in getting there on time. We had movies (a projector is almost a necessity), visiting celebrities such as one of the local detectives (badge and all), and musicians. We had stories by our own Uncle Arthur and he was good! And naturally we had men and boys, who were expert model builders, bring their rubber and gas models to the meetings. You can imagine the sensation caused when the boys heard and saw a hot gas engine revved up. Of course, there was a sort of let-down when they got around to working on their own simple glider . . . they could not understand why they could not go right ahead and build one of these engine jobs.

Singing is good. If there is a piano handy and someone to play it, you're all set. It's best to have some song sheets mimeographed . . . helps them to learn the songs a lot faster.

Prayer is good too. We open and close our meetings with prayer. Our country was founded on prayer; Congress opens and closes with prayer and we know that it is necessary in our every day life as well as in church.

The best way to get the boys interested in building a particular model is to have one completed and bring it in to one of the meetings. Point out cer-

tain aspects of this particular model; how long it can be made to fly; how to adjust it; how long it will take to build, etc. Glide it inside and give it a few winds if the meeting hall is large enough. If it is still daylight outside you can take them out and really wind her up. Of course you will probably have the model well tested to make sure it flies perfect. You wouldn't want to be embarrassed in that respect. But even if it hardly gets off the ground the kids will be satisfied. And talk about enthusiasm if it makes a crash dive into the ground. They get just as much kick out of such a performance—in fact possibly a little more. As long as you have the model there for them to see, and it shows some evidence that it is a flying model you can get them pepped up. Also, each boy seems to have an expanded feeling of his own ability (just like grown ups) in being able to make his model fly better than any one else's.

We found that the only way to have some semblance of order and cohesion in the building was to have them all construct the same model. At first we had one group building scale models of boats and airplanes; others on gliders, etc. There was too much confusion and it was almost impossible to have a contest. Judging the winners was a job. We finally got the whole group interested in building a simple glider after we showed them how it went up on a catapult.

It's also best to have the building program planned. Let the boys know that we expect to do so much each night and that we plan on having the contest at a set date. This factor will keep them coming every meeting. No one wants to be left out. In fact every aspect should be timed. (Continued on page 37)

*Movies, musicians, story tellers, all
play a part in meetings. Expert mod-
elers bring in rubber and gas jobs.
And when they hear that engine run
—oh, brother. All sorts of patterns,
guides, for each group of six boys.*

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TOP AND BOTTOM



planes in the NEWS



by David Anderton



Top—A quarter-century ago this May, *Spirit of St. Louis* was in the news. Then-and-now contrast highlighted by ships like *Scorpion* jet, above, latest.

Below—Swedish Saab *Draken* delta jet is clever, well executed design by this small but airwise country.



Twenty-five years after Lindbergh's ocean hop to Paris, the Air Force has gone beyond 100 fighter designations. Navy, too, has new fighter flock.

► It was late afternoon when all the factory whistles in our town began blowing. Late afternoon, twenty-five years ago, on May 21, 1927. As soon as the batteries could warm up our three-dial Atwater Kent, we heard it blaring out the news. And the man next door stood by his parked car, hand on the horn button, shouting for all to hear—"Lindy made it!! Lindy made it!!"

America had no aviation hero like that twenty-five year old pilot before; and in the years since his epic flight, we have yet to find another of his stature. For Charles A. Lindbergh was—and still is—of the stuff from which heroes are made.

For him, the flight was the end point of dreams and plans. He had been an Army pilot; had barnstormed and done stunt flying all around the West. He was a member of the Caterpillar Club several times over. He flew for Mile Hi Airways in Denver and for Robertson Aircraft Corp.

And somewhere along the line, perhaps during a solitary flight between clouds and earth, Lindbergh decided to have a crack at the greatest adventure—the flight from New York to Paris.

For seven years, there had been a standing offer by Raymond Orteig of \$25,000—not just for crossing the Atlantic,



Above—First French craft to hit 621 mph, Sud Ouest SO-M2 now has novel tiptanks which fair outrigger wheels. Biketype landing gear.

Below—Wingtip tanks of French SO-6020 Swordfish jet fighter contain fuel for the rocket motor aft. Does 646 mph, has a heavy cannon set-up.



but for flying between the cities of New York and Paris.

There had been abortive attempts before Lindbergh. Rene Fonck, premier French ace of the Great War, had crashed a Sikorsky bomber conversion in flames at the end of the runway at Roosevelt Field. Lt. Cdr. Noel Davis and Lt. Stanton Wooster, both of the Navy, crashed their American Legion in Virginia. And early in May 1927, Nungesser and Coli, two excellent French aviators, disappeared on a Paris to New York run somewhere over the Atlantic.

The days drew on in 1927. Out at Roosevelt Field, mechanics were crawling over the America, a tri-motored Fokker, being groomed by Commander Richard E. Byrd and a crew of three—Bernt Balchen, Bert Acosta and George Noville—for the crossing. Nearby stood a Bellanca monoplane, the *Columbia*, in which Clarence Chamberlin and an unselected (at the time) companion were to attempt the flight.

Then a tousle-haired kid with an easy smile and shy manner flew out of the West, from San Diego to New York with only one stop at St. Louis. It was a new record for a coast-to-coast hop. From then on, Lindbergh was in. He was page one material—he, and the little Ryan monoplane emblazoned with "Spirit of St. Louis" on its mottled cowling.

That was quite an airplane, all 5,000 pounds of it. Lindbergh and eight businessmen from St. Louis had scraped together \$12,500 to finance the design and construction of a special Ryan monoplane. Sixty days after building started, the craft flew for the first time. It was powered by a Wright J-5 Whirlwind, a nine-cylinder radial engine developing about 220 horses. Wingspan of the special Ryan NYP was 46 ft., and the constant chord was 7 ft. Contemporary accounts credit the Ryan with a gross weight of about 5,000 lb. The gasoline capacity was about 450 gallons.

Probably the unique feature of the craft was that there was no direct forward vision, the only windows being at the sides. To see what was going on out front, Lindbergh had to use a periscope which could be retracted.

Early in the morning of May 20, Lindbergh pulled the door of NX-211 closed. There was good weather reported over the Atlantic, and he wanted to make the best of it. With him, he took five sandwiches and two containers of water. And at 7:52 in the morning, he revved up the Whirlwind, bumped down the field and cleared the runway on his way to immortality.

The years after that did not deal so kindly with Lindbergh. Tragedy crossed his path; (Continued on page 53)

PART ONE



Looping smoothly at Dallas, the author's model goes through the pattern. It was this flight that had the event won but for a motor over-run penalty.

Stunting CAN BE Smooth

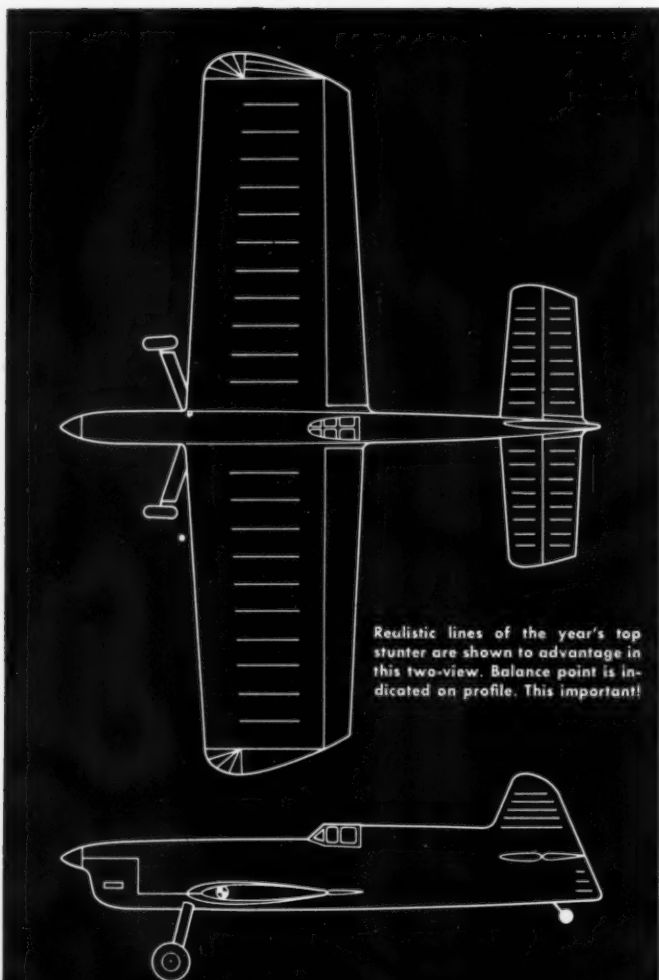
by George Aldrich

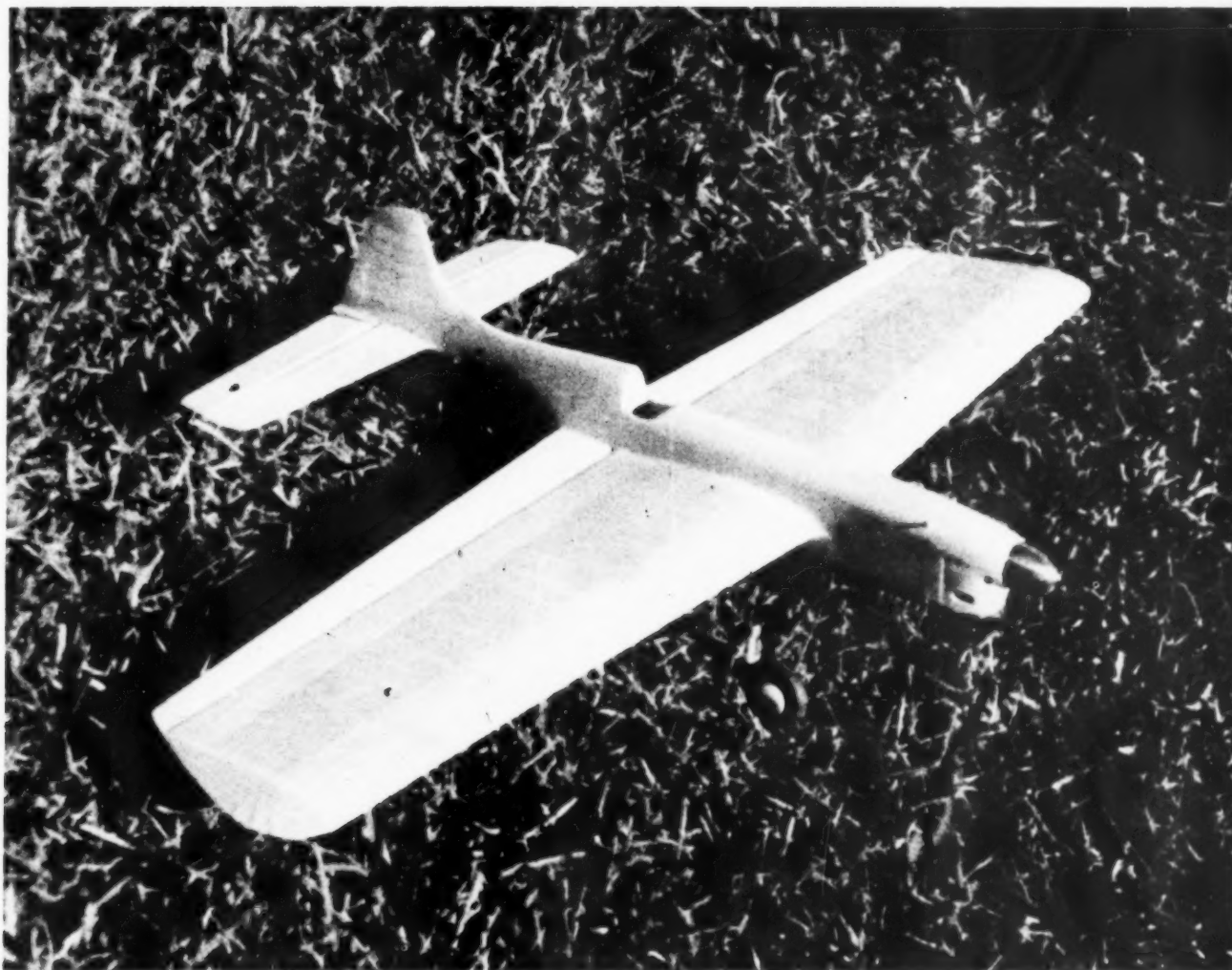
For appearance, smooth flying in the wind, the author combined large size, greater weight, flaps, long nose, to win the Plymouth Internationals, and just miss winning the Nationals. Here he outlines background for his design.

► After four years of steady building, observing, then designing and building again, this person was beginning to believe he was just not meant to be one of the elite in contest winners. The 1949 Nationals really began my extreme experiments with stunt models for, there, I met Bob Palmer who taught me much of what I know today. As most stunt addicts know, he was the first person to use flaps working as a source of lift on models. This constitutes what I have learned from Palmer and what experience will teach anyone.

After the 1950 Nationals, where I placed fourth, I was determined to build a model that would fly in the wind. The wind at these Nationals was terrific; thus I lost valuable points for maneuvers that the model was not capable of performing due to weight added in obtaining a good finish. When I sat down in December of 1950 and began the first drawings for my new model, there were three things in my mind: 1—smoothness; 2—appearance; 3—and a model that would fly under all weather conditions.

Before I go any further, I feel it necessary to explain why I use flaps for stunt flying. In the first place, flaps, when moved, add an extra large amount of lift to the wing. With this extra amount of lift, it stands to reason that this will cause a very decided change in flight—much more than is needed to perform the present A.M.A. stunt pattern, much





Finished model before painting. Covering has been water sanded preparatory to putting on the deep blue finish. With finish weight may hit 47 oz.

less a smooth one. Since a model that is to be judged for appearance must have a good finish, it will naturally weigh more. A model that weighs a considerable amount (35-47 ounces) will not be efficient enough to perform a smooth stunt pattern when powered with the .29-.35 displacement motors. Some would say decrease the size of the model; others, increase the power. Both give a model that travels too fast for a pattern that is easily seen. With the increase in lift, a model may weigh as much as three pounds (as mine did) and still do a pattern that is very slow but very close to faultlessness. In the months that I have flown my model, the first thing that anyone has said about it was, "Golly, it does everything so smooth."

I inverted my motor for one reason only; appearance! Since I did do this, I raised the thrust line high enough to cause a "pulling" effect while the model was in upright flight and in inside loops. To counteract this, along with a fairly long tail moment arm, I added considerable nose moment, as you will notice in the drawing.

Though my opinion is not shared by everyone, by any means, I think it is much harder to fly a pattern that is slow and easily seen than to fly one that is so fast that the judges only know that you did the maneuver. When you fly slow, the judges have every opportunity to see the maneuver. Thus you must be much sharper in the ways of precision flying. A model that is stunted at a speed over 70 mph cannot be made to fly precision acrobatics nearly as perfect as one that is flown at slower speeds. If one is willing to spend

a few more hours practicing his maneuvers, he will be awarded flying ability he never believed possible. After all, the rules call for precision flying, not spectacular speed, and tightness.

All this data is worked out for a model of not under 495 square inches with a .29 or .35 for power. I believe a model any smaller than this in power to size will be too fast for accurate stunting. Out of all the models that I have seen flown in all contests, there have been few that I felt were really smooth.

Here are a few things that I find more than useful in my practice flying. I start flying a model on the drawing board. That is to say, I trim the model as much as possible while I am building it. You must trim a stunt model with as much care as you would trim a free flight. You will note the sketch shows where the greatest amount of trouble arises in flap models. Notice the warps in the wing. These would cause the model to drop its inside wing panel. All you have to do is to place your thumb and forefinger over the spot on the flaps where the control horn is set into the wood. Apply pressure in the opposite direction of the warp by twisting. This will spring the horn wire and thus counteract the warps. I did this to a number of contestants' models at the '51 Internationals and they were overjoyed with the results.

Besides all of the Sunday flying that one does with the gang, there is another kind he should take up. About a month before the contests start rolling around, he should

go out and do some special exercises that will get his reactions really clicking. If you know how the pattern is supposed to be done, go by yourself. If you are not sure of it, dig up someone who does, to criticize the later stages. Whether windy or not, try to make the sessions every day.

These exercises consist of eight flights, the first being the upright and inverted flight. Though these may seem rather simple, they are tricky and are costly in points. If you need something to go by, place about eight markers around the circle. I find that eight feet is a very convenient height. Pay particular attention to the entry and recovery. They should gain and resume level flight within a quarter of a lap without a jump or wobble. The second is the vertical climb and dive. This is done very much the same as the preceding, the important point being to keep the angle vertical for 15 feet or more, and recover the eight foot altitude smoothly. Although the wingover is the easiest maneuver in my opinion, it is wise to give it a good work over. I found that the best place to start the wingover is when the model is sideways to the wind. This helps the model over the top. You would do well to learn the wingover by giving the control only once. Just a sharp snap of the wrist. Inside and outside loops are next. I enter the outside loops from the inverted position. For this reason, I do six loops instead of five so as not to confuse the judges. The horizontal eight is one of the hardest, so it might be advisable to add an extra flight for good measure. Start the eight from upright position. A much neater maneuver may be obtained if you do this. Little else can be said except to be very critical of this and all eights. The most important point in the vertical eight is to keep the height at least 10 degrees below the allowed 90 degrees. As the overhead eight is the second hardest particular care should be taken. Start the maneuver directly into the wind. Bring the model overhead in an inverted position at about a 70° position. When the model passes in front of you, bring it straight through the center of the eight. Then start and finish the three eights. As you complete the last maneuver, the model will be directly overhead. Dive it vertically as though you were finishing a wingover and retain the eight foot altitude. Now, we come to the giant killer. This maneuver, I believe, can win or lose a contest. The square loop is done by making four, very sharp but smoothly executed, snaps of the wrist. Simple to say but so difficult to do. All that I can say to you is practice, brother, practice. In the time that I have flown and watched stunt, some four years, I have seen one person who could execute a square loop as I believe it should be done—sharp, smooth, square corners, smooth flight between turns, and a smooth recovery.

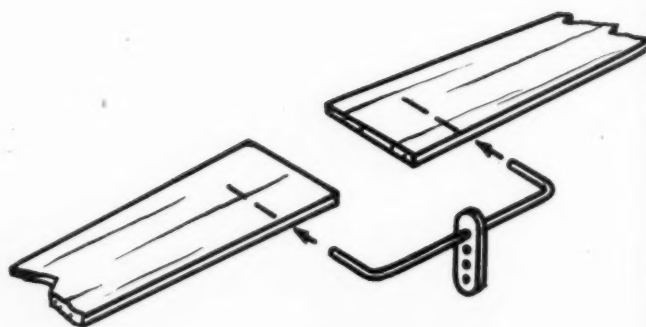
One last comment on the pattern—learn how to fly in the wind. Start the maneuvers with the wind to your back except elsewhere started.

Those of you who were fortunate enough to compete in this year's Plymouth Internationals will join me, I'm sure, in congratulating the work on this meet. This was by far the toughest, most sportsmanlike and most unbiasedly officiated competition it has been my pleasure to fly in. Naturally, I would be more closely associated with the stunt division. Here to mention only a few, I would like to give credit to Walt Stevensen, Art Van Laken, Rolland McDonald, and Joe Howard.

On the morning the senior division was flown, I went out bright and early and made a couple of check flights for precaution. As previously mentioned in this magazine, I was dropped from first to fourth place at the Nationals because of an over-run on my motor. After processing and changing glow plugs and props, I made my first official—this eventually being my winning flight. The wind was very slight and I experienced no trouble. My next attempt was a delayed flight due to a faulty glow plug. By the time I walked into the circle for my last official, the wind was up to about 10 mph. Here I experienced the same old difficulty. My motor ran a minute and a half over time.

The point I want to bring out is that, whether I had won or not, I would still have the highest praise for the officials at this meet. They are, in my opinion, very close to the apex in the little appreciated judging field.

Some would say that winning a stunt contest depends on judges instead of how you fly. This is not altogether true.

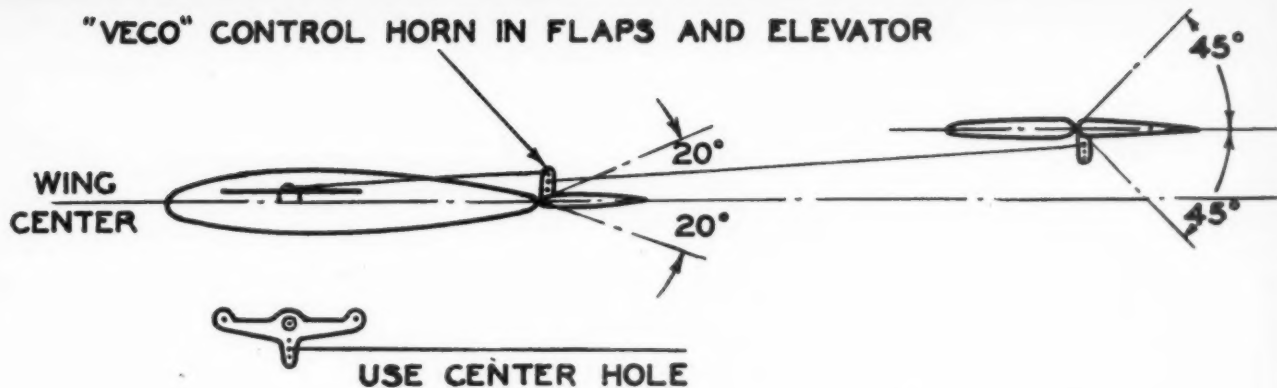


Flying procedure is just as important as your flying. After all you can't win if you don't fly. Here are a list of things I checked before each flight:

- (1) Change glow plug.
- (2) Tighten the prop.
- (3) Check the alignment of wheel tracking.
- (4) Check controls.
- (5) Check gas tank and fuel lines.
- (6) See if needle valve is set (I always keep a positive setting).
- (7) Check the control handle setting. This can cause a lot of trouble if you use an adjustable handle.

(To be continued next month)

"VECO" CONTROL HORN IN FLAPS AND ELEVATOR



DRILL HOLE TO
3/32 DIAM.

3/32 O.D. BRASS T'B'G.
SOLDERED INTO POSITION

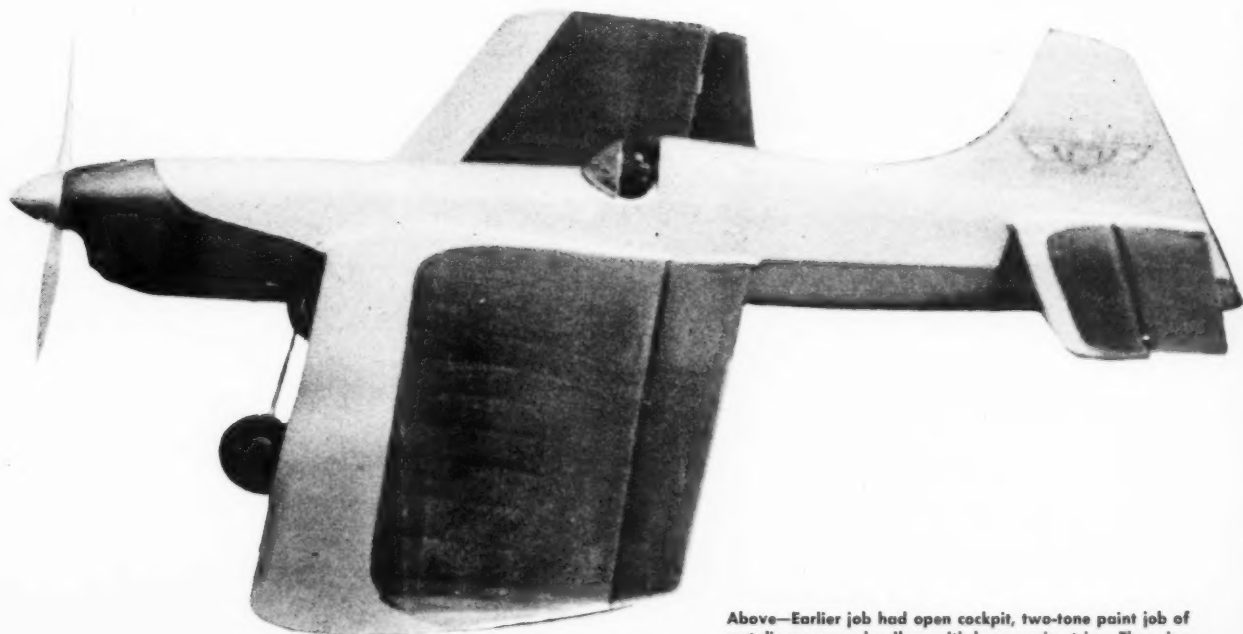
1/16 I.D.

ORIGINAL HOLE
1/16 DIAM.

"WASHOUT"

"WASHIN"

Top, opposite—The author with four trophies garnered at Detroit.
Above—Detail sketches of features in his winning stunt job. Left—Karl
Bronson, De Soto division of Chrysler, hands first place trophy to author.



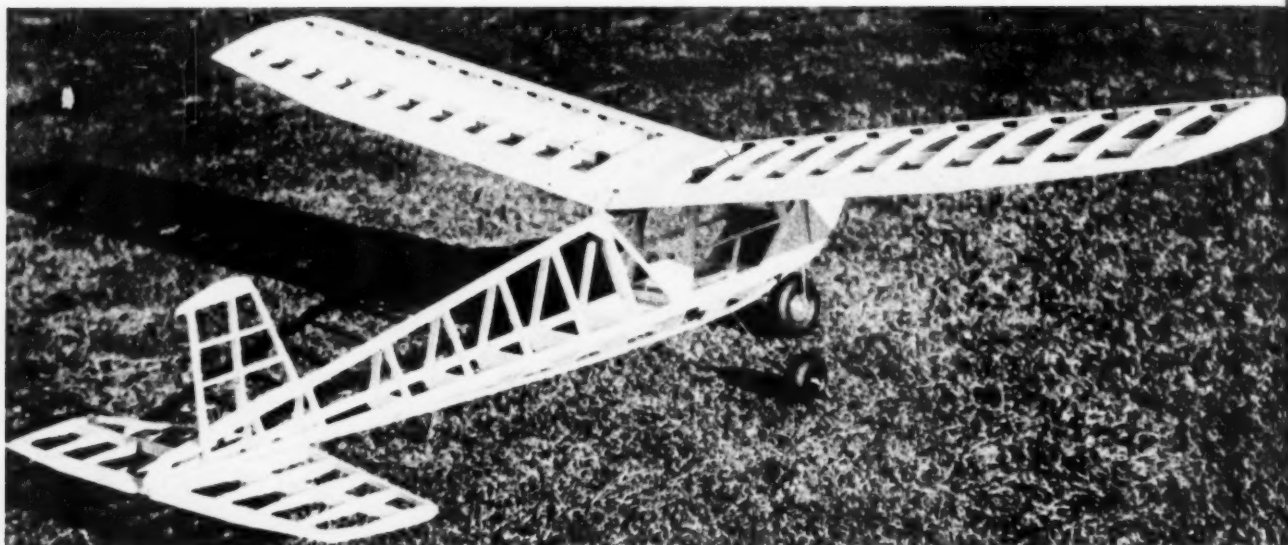
Above—Earlier job had open cockpit, two-tone paint job of
metallic green and yellow with bronze pin stripes. The wing
area is approximately 500 sq. in.; power .29-35.



First prize winner (\$10) for workmanship this month is all-white team racer built by Peter Sandford, Cremone, NSW, Australia. Under their rules it is C class job. Uses home-built motor.

air ways

Here's a prize group of stand-out models of all kinds from all directions of the compass. What ships have you built?



Peter Rodway, North Birmingham, England, thinks Americans would be interested in a British rendition of the Rudder Bug, by now a truly

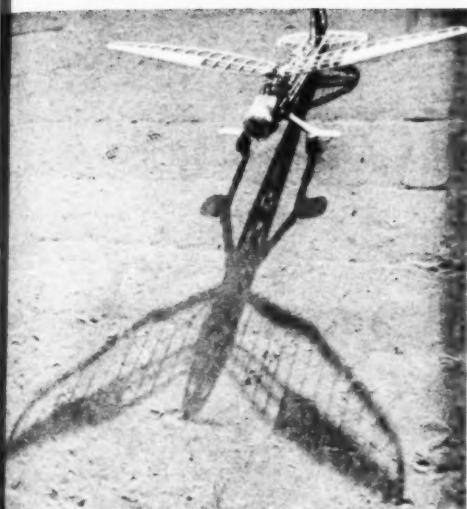
international design. Peter counts himself lucky to have obtained a Forster .29. Ship and motor now doing fine, thank you! Jenny of the rc field.



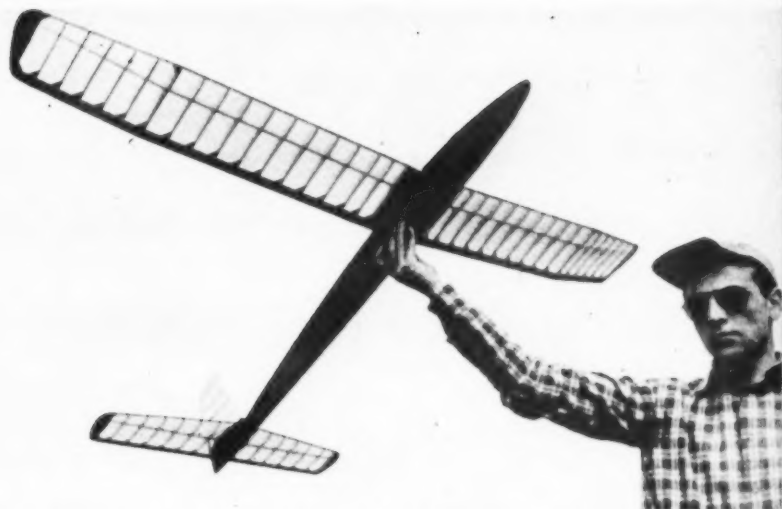
Looks like DeBolt pipe being used as night flier with wingtip, belly lights, Japan. T. Kimoto, Osaka, who sends pic says KIMAC means Western Japan International Model Airplane Club.



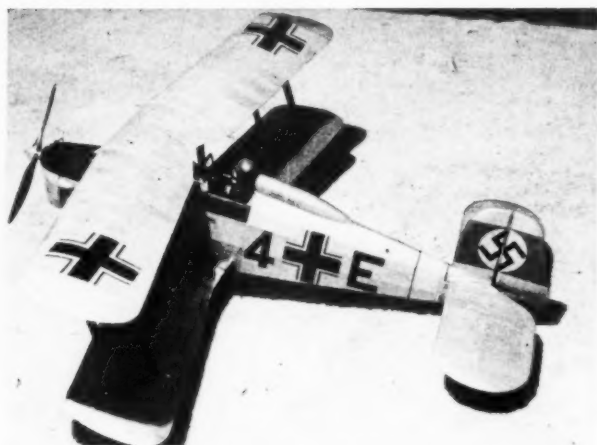
Two receivers, one Motor Rudder, feature Al Zepka's rc. Zepka hails from Wethersfield, Conn.



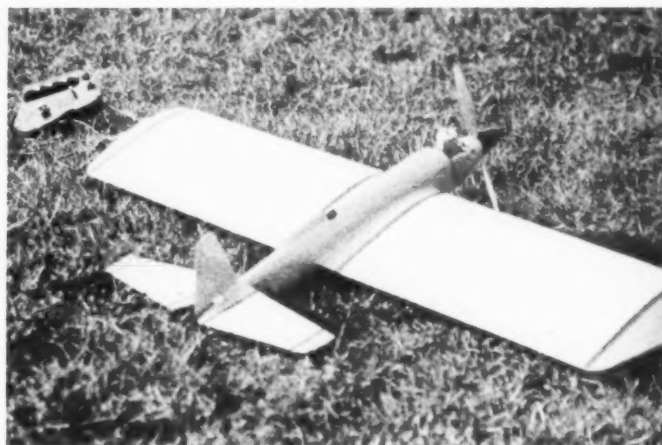
Lysander framework and its shadow. Model made by A. van Sorgen of Rotterdam, Holland.



Winner of sailplane event at Italian Nationals, Pisani Cassio, with 47" Nordic type job. Pisani belongs to the Aero Club Pisa, winning club. He also took sixth in F.A.I. free flight event.



Third prize winner for workmanship (subscription), Bucker Jungmeister, A. G. Grimes, London. Span 20", an Elfin diesel 1.8 cc, 24 ounce weight.



Built from M.A.N. plans is Wee Duper Zilch, by W. Choy, Wellington, New Zealand. Pepperell 10 (.109) diesel turns 8 x 6 propeller at 11,500.



Second prize for workmanship (subscription) goes to Robert Miller, Richmond Heights, Mo., for twin .09 rc job that resembles B-26, is

stable and does neat figure eights, but apt to stall severely at times. Would do better with glow plugs, squared off wings, he says.

Sky Wing



Swept-forward wings and polyhedral lend spice to this interesting flying project. Fuselage is sheet balsa, the wing sparless. The stab — oops!

by Donald C. Broggini

► Here's a sport model for AA that is different, and quick to build, as well as being extremely stable and easy to adjust. Most prominent is the lack of horizontal tail surface, and the swept-forward wing.

Of particular interest is the toed-in or staggered tip dihedral wing break. This gives wash in effect and eliminates the need for building in twist or wash in (wash out in the case of sweptback wings) as is customary with flying wings. This wing is made flat except for dihedral. The wash in effect is obtained by making the trailing edge wing break further outboard than the leading edge wing break. It results in the forward or outer portion of the wing flying at a higher angle of attack than the rear or inboard portion. This feature, coupled with the use of a stable type of airfoil section, gives the ship ample stability.

The toed-in wing break has a secondary effect. It acts in part as toed-in rudders. The action of toed-in rudders is such that, when a plane yaws, the foremost rudder increases its drag at a faster rate than the aft rudder. This contributes to the normal "weather-vaning" action that a rudder performs. Thirdly, the tip dihedral break adds to the dihedral effect.

With its single leading edge and trailing edge, sheet balsa construction, and absolute lack of difficult-to-make curves, the plane is sturdy and easy to build. The one wheel landing gear works well. For R.O.G. the plane may be launched with the wings held level or with either wing resting on the ground. Upon release from this latter position, the ground action helps to lift the low wing up, and off the ship goes on a neat, unassisted take-off, and a surprisingly good climb.

Construction: Start the wing first. Cut ribs W-2 from 1/16" hard sheet balsa and two ribs W-1 from 1/8" balsa of any hardness. The leading edge is made from 1/2" square stock and the trailing edge from 1/4" x 1" stock. Be sure that both the leading and trailing edges are extremely hard balsa and of as straight a stock as possible. The trailing edge is notched about 3/32" to receive each rib. It will be noted that the top of the trailing edge is maintained horizontal, not the bottom. When putting in the tip dihedral wing breaks, be sure to break (Continued on page 49)



Used to all manner of wild airplanes, Mrs Don displays Skywing.

Boasting a long list of contest wins with flying wings, the author was asked to develop something special for sport-minded MAN readers. Sensible yet different. Does so fly!

Don test glides the wing like any other gas jobs. Ship is stable.



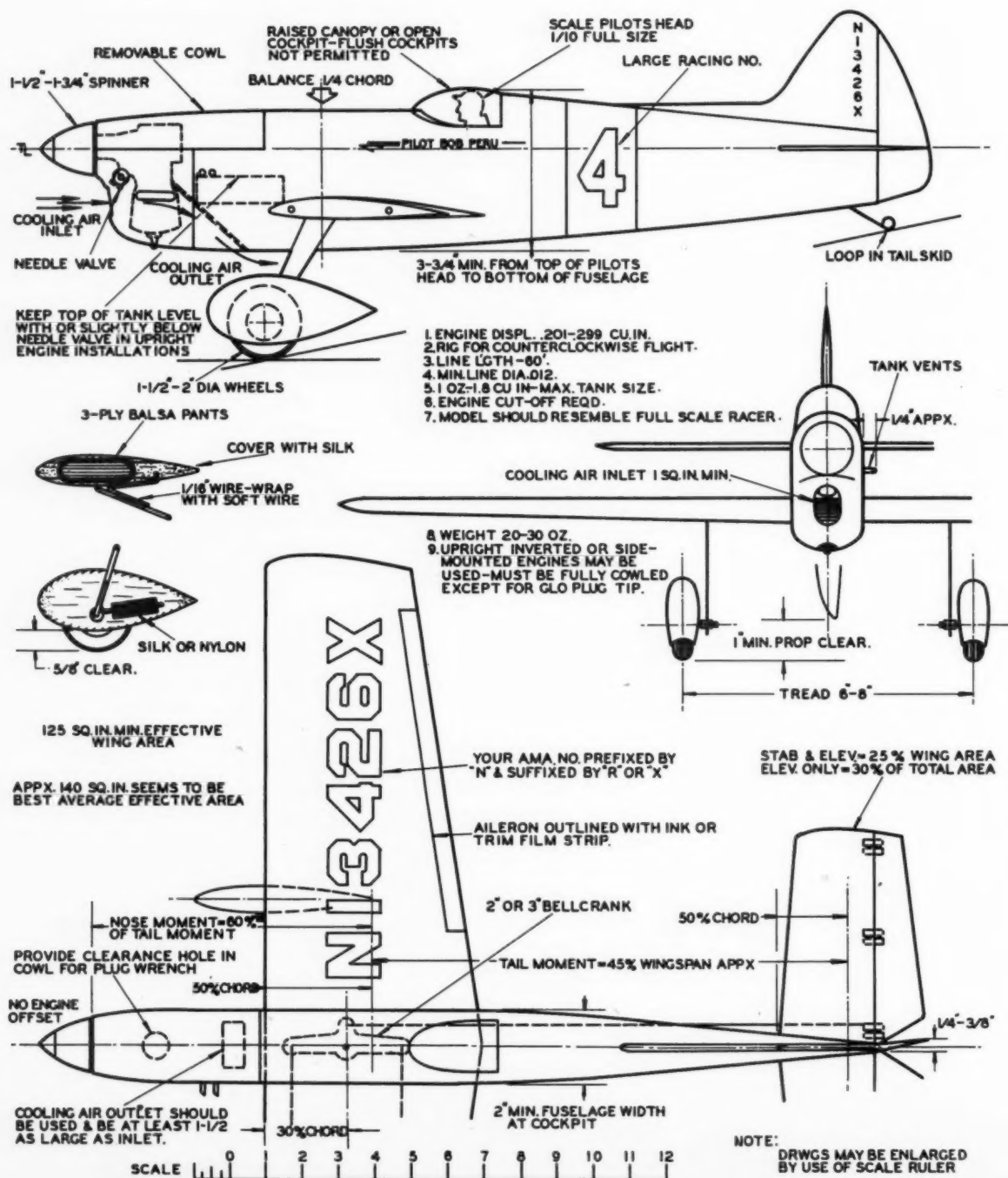
design detail

... by Harry Williamson

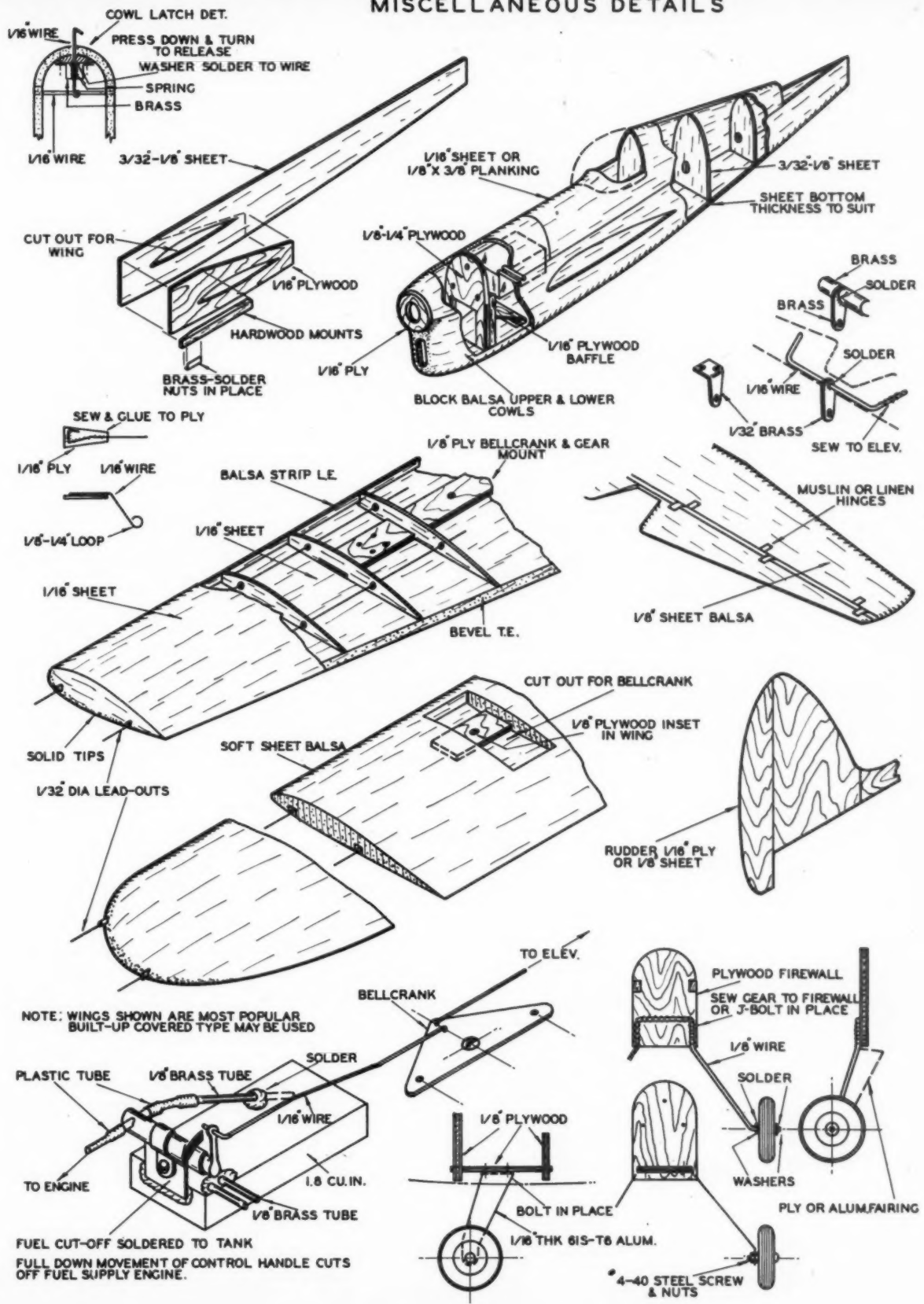
Team Racer

No type of model excites pride of ownership more than a sweet looking, sweet flying team racer. Here's how you can turn out a job with looks, for fun or contests.

GENERAL OUTLINE



MISCELLANEOUS DETAILS



The original version of the Challenger flew as many as 64 laps of race on an ounce of fuel.



The Challenger



Author with the original model. Featured in the design is a pressure cowl, motor shut-off.

by Leon Shulman

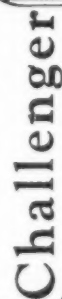
When a veteran stunt man and old-time free flight designer goes after team racing, things have got to happen. Here is the story of one airplane with dope on various engine set-ups.

► Team Racing is a challenge today to the average control line flyer—it was to us too. After designing, building and flying many control line models from the early control line days in the early 40's when "Daddy" Jim Walker toured the U. S. with his famous *Fireball*, flying straight and level advanced to the present stage of screwball aerobatic maneuvers which all but bends the plane in the middle. As fascinating as stunt flying is, it too becomes less of a challenge after you complete the basic average stunt patterns, and like many of you, we too looked towards newer horizons. Team racing is the newest and is increasingly becoming the most fascinating phase of this grand hobby-sport of the "spin-dizzies." Being green at this, we studied the A.M.A. rules on team racing which outlined the idea on the subject and laid down certain specifications. Following these, plus past model experience, brought about our model to accept this challenge—and was promptly named—the *Challenger*!

The *Challenger* is no unorthodox model, and as a matter of fact is conventional except for a few specific features which lends to the airworthiness and durability of this model—features which experience has proven to be a necessity in team racing. As a flier, the *Challenger* responds very smoothly to control and will more than hold its own in any race. The balance of the design lay-out is ideal in that it is groovy in flight. Because of its light construction, it takes-off quickly and, when levelled off to normal flight, stays put, yet will react to any definite control movement when overtaking an-

other racer or coming in for a landing.

These fine characteristics of the *Challenger* were developed over several months of active team racing and the model herewith presented incorporates all the features found to be necessary in such a model. This model too has been flown with four different engines to date, all with great success, but with varying speeds. The first version of the *Challenger* was powered by a Fox 29 Racing Special engine and proved to be the fastest version to date. This model sported a tin-can type cowl around the engine, similar to the type used on the Berkely Quest. It was clocked on several official qualifying flights at 100.2 mph. The engine used was stock with no modifications or alterations during the qualifying speed dashes. For the other races, the intake stack was closed off at least 50%, by plugging the stack with a K & B intake restrictor or a simple plug made of wood. Although this was the fastest combination, it was found to use considerable fuel—the price we pay for speed! The second version used a K & B 29, the early version of the *Glow-Torp*. This version clipped off a neat 92 mph and was very consistent in performance. It too used the tin-can type cowl. The third version was altered only to accommodate a Veco 29. The performance was only slightly better than the K & B 29, doing 93 mph average, and it too proved to be very reliable and consistent. By the way, if you'd like to use a larger engine, the K & B 32 and the Veco 31 will mount in the same mounts as the other engines with very little re-working, since there is only a slight differ- (Continued on page 50)



000000 000000

MADE BY P. WELLES



USE THE RIGHT CEMENT

TESTORS FAMOUS MODEL AIRPLANE CEMENTS are formulated to meet the exact requirements of the cementing job you want to do. Keep both of them on hand at all times!

FORMULA A is *extra fast drying* for quick, easy construction of lightweight models and for on-the-spot repairs.

FORMULA B is the *strongest* for balsa or hardwood . . . for metal to metal . . . for metal to wood. It is your best bet for general work.

HELPFUL HINTS FROM TESTORS WORKSHOP

Helpful Hints from Testors Workshop: End grain butt joints should be coated thoroughly with cement and left to dry before a second application is made and the parts cemented together. When you cement small, hard-to-handle parts together, it is a good idea to

allow the cement to dry until sticky before you join the parts. Then you may hold the parts together in the right position with your hands until the cement has dried completely. In this way, it saves time and you avoid using pins or clamps that might cause damage.



HOT FUEL PROOF FINISH

STA is, as always, the finest hot fuel proof finish that you can use. STA will effectively resist all hot fuels on the market today, including those containing high concentrations of such ingredients as nitro-methane, methanol, castor oil, etc. Available in 12 colors, Clear, and Sealer in 15c and 50c jars; also STA Thinner (15c and 35c).

TESTOR CHEMICAL COMPANY



FOR A REAL SMOOTH FINISHING JOB

For a real smooth finishing job, apply several coats of TESTORS SANDING SEALER — don't be stingy with it — and allow 15 minutes dry-time between coats. As you sand down each coat, you will see how the grain of the wood gradually is filled out, until you have a perfectly smooth surface for the Dope application. Thin the Sanding Sealer a little with the corresponding TESTORS DOPE THINNER and for sanding, use TESTORS No. 320 Coarse Finishing Paper which you find in the TESTORS FINISHING PAPER 10c assortment. Don't try to remove stray hairs left by the brush until the Sanding Sealer is dry. Remember: a thorough Sanding Sealer treatment is necessary for perfect finishing. You cannot make up for it later by applying extra coats of Dope. For brushing... TESTORS DOPE should be thinned a little

with Testors Dope Thinner. For spraying... use Dope and Thinner half and half. Mix thoroughly! *Never* attempt to "doctor" Testors Dope. Do not add castor oil or other chemicals! Sand only lightly between coats... you will find Testors Dope very easy to work with. It has been carefully formulated after extensive laboratory research and testing to give you truly superior quality, most effective results. Available in a full range of colors — including official Army-Navy aircraft colors—in sizes from 15c jars to gallons.

COMPANY • ROCKFORD, ILLINOIS





Jimmy Doolittle with the Curtiss R3C-2 seaplane in which he won the Schneider Seaplane Trophy Race in 1925 at then very fast speed of 232.57 mph. Below—Curtiss Pulitzer racer winner, the R3C-1 flown by Al Williams. This ship was fourth in the progressive series sponsored jointly by Army-Navy.



the Curtiss racer

by Robert C. Hare

During early twenties, the services vied, then collaborated, on this famous racer series.

► On the morning of September 15, 1925, a small group of men stood around a sleek little biplane resting just off the runway at Mineola, L. I., New York. The little ship was the Curtiss R3C-1 racer, a design jointly financed by the Army and Navy.

This accounted for the presence of a pilot from each Service: Lt. J. H. "Jimmy" Doolittle, Army and Lt. A. J. "Al" Williams, from the Navy. While the racer's engine warmed up, ticking like a finely tuned watch, a coin was flipped to see which pilot would have the first flight honor. The Navy's Williams won.

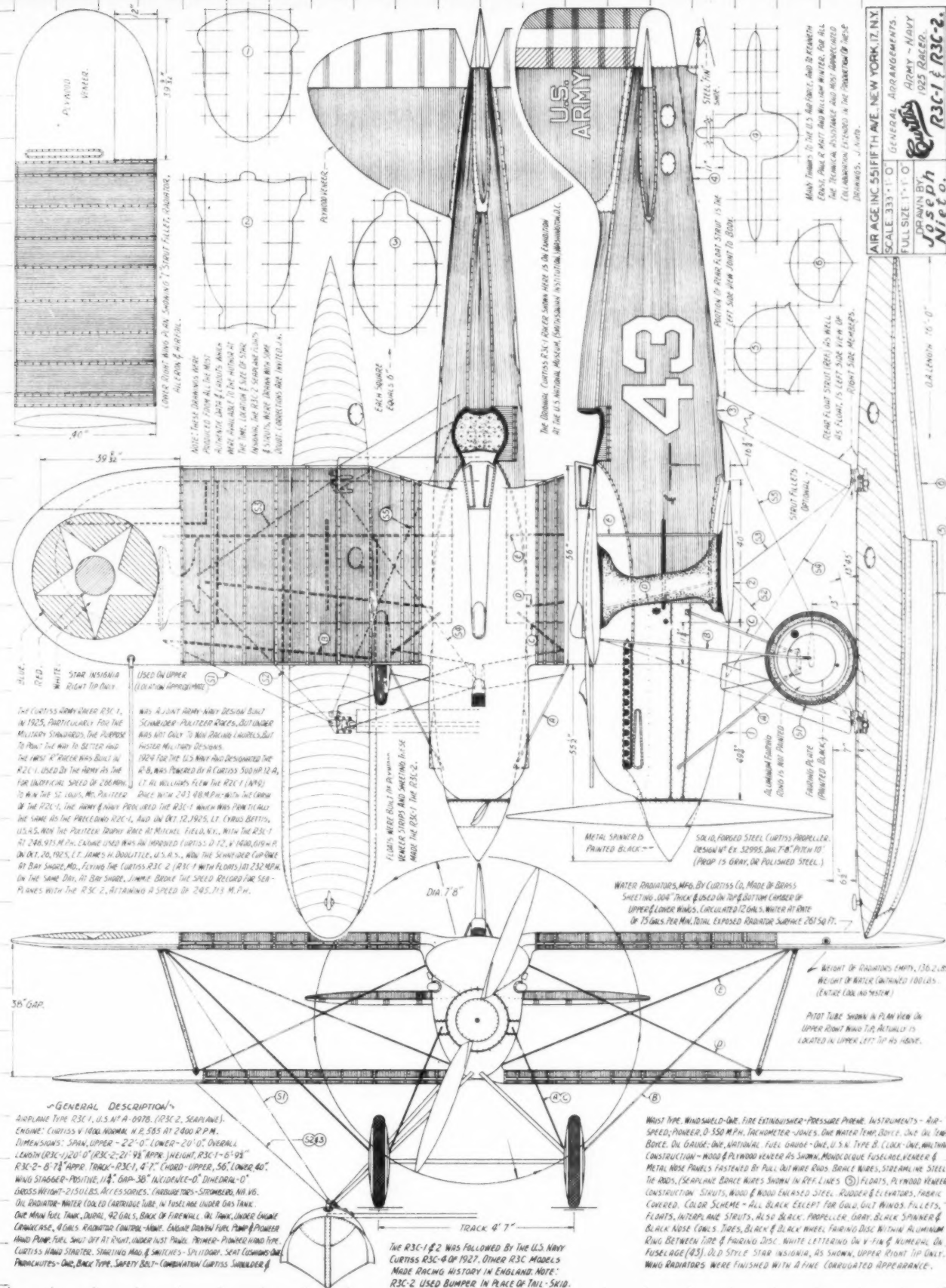
During Williams' flight, one of the aluminum wheel streamlines came off and the other cracked. After mechanics replaced the streamlines, Doolittle took his turn. During his flight, in which he was timed at slightly more than 300 mph over a one kilometer course, after accelerating in a 200 foot dive, the R3C-1 became wingheavy on one side. Doolittle looked out and, lo and behold, he saw the fabric tearing away from the upper left wing near the tip.

Doolittle put the little ship down in a hurry and it was put in the factory shop where the fabric was replaced and

the wheel fairings strengthened. On September 22, Army Lt. Bettis was putting the racer through its paces when pandemonium broke loose. Half the nose spinner flew off and was kicked backward by the prop. The mangled piece of aluminum tore open two wing radiator sections, caromed into an interplane strut, then bounced back into the stabilizer, damaging it as well. Bettis got the ship down in one piece, but it was put in the shops for extensive repairs and strengthening.

Truly, this was flying "by the seat of your pants." The R3C-1 was the fourth design in a progressive series by Curtiss for the Army and Navy. It may be hard to conceive, in light of present day methods, that aircraft characteristics and structures could have been so dependent on trial and error as they were in the early 1920's. With the background of experience leading up to the R3C-1, high speed flight still was a mystery.

Although the plane under discussion this month is the Curtiss R3C-1 of 1925, its story actually begins five years earlier, at the first National Air Races held at Mitchell Field, Long Island on Thanks- (Continued on page 46)





official news

by Russ Nichols and Carl Wheelley

**Nationals to California in 1952 •
The East in '53 and the Midwest
in '54 • FCC approves 27.255 mc
license-free for model airplane
control • Full contest calendar**

Eddie Mahler, hanging on to one of his roaring Civvy Boys, looks to see if timer is awake.



► **LICENSE-FREE 27 MC BAND PASSED BY F.C.C.** Good news for prospective radio controllers is the opening of this license-free band which the AMA Radio Control Committee, chaired by Walt Good, has worked toward for years.

It appears that the F.C.C. rule changes adopted are just about the same as those proposed in Docket 10086 providing:

A. A modeler may build or buy his transmitter if he conforms to the following items:

1—The transmitter must be crystal controlled at a frequency of 27.255 mc; 2—The transmitter must not exceed 5 watts input power; 3—The owner of the transmitter must file F.C.C. Form 505 with his nearest F.C.C. office. Approval of this form constitutes the license of the transmitter.

B. No operator's license is required. Anyone may operate the transmitter with the owner's permission.

C. This service may use only on-off unmodulated or amplitude tone modulated carrier for the remote control of objects or devices only—no voice or Morse Code communication.

LOS ALAMITOS, CALIF., SITE FOR '52 NATS. Following the 1951 Nationals, the Navy was informed that a majority opinion previously expressed by the AMA Contest Board preferred to stage the 1952 Nationals on the West Coast, the 1953 Nationals on the East Coast, and the 1954 event in the middle of the country. The cycle would then be repeated, thus giving more modelers throughout the country an opportunity to compete in the Nationals at least once every three years or, in most cases, two out of three years with a minimum of travel.

Navy concurred and authorized the use of the U. S. Naval Air Station at Los Alamitos, during approximately the last week in July. Los Alamitos is near Long Beach and Los Angeles. The National Exchange Club, sponsor of the Nationals, found that enthusiasm was expressed by the Exchange Club of Long Beach at the prospect of being the host club. All that was lacking was the approval of the 1952 AMA Contest Board which now has endorsed the rotation plan with the 1952 Nationals in the West by a majority of 20 to 2.

Following the approval of the site and approximate dates by The National Exchange Club, Navy, and AMA Contest

Board, a meeting of leaders in the Long Beach-Los Angeles area was called by the AMA District X Contest Board members. In attendance in addition to the area's leading model men were Mr. Will Winston, chairman of the Long Beach Exchange Club Organizing Committee, Commander Lee Reister, Public Information Officer at N.A.S. Los Alamitos, Lt. Commander John Burton, in charge of the Navy's model aviation program, and AMA's Russ Nichols.

John Bollinger of Long Beach was named Contest Manager. Captain E. J. Drew, Skipper of N.A.S. Los Alamitos, says that he looks forward to entertaining model builders from all over the country.

WAKEFIELD TEAM TO SWEDEN. The AMA Wakefield Committee is preparing a Wakefield booklet which will be sent to all AMA members. Sale of ad space in the booklet has raised almost enough money to finance the entire team's travel expenses.

What the Wakefield Committee is trying to do at present is to take the almost out of the last sentence. They need your assistance in the form of contributions to the AMA Wakefield Fund, a fund accounted for separately in AMA finances. So, make your checks or money orders payable to "Academy of Model Aeronautics Wakefield Fund" and mail them today to: AMA, 1025 Connecticut Ave., Washington, D. C.

NAVY CARRIER EVENT. No longer is it a rumor that the Navy will sponsor an AA Carrier Event at the Nationals. It's a certainty. Engine maximum displacement has been set at .080 cu. in. for one engine or the largest engine in the case of multi-motor models.

Correction, please! Regarding the Navy Carrier Event rumor in the March M.A.N., the line length for the larger ABCD class, instead of being changed to 52½" as expected, has been changed to 60". Also, this year for the first time, models must be replicas of U. S. Naval aircraft to obtain bonus scale points. This does not mean that Carrier entries must be Navy scale models or scale models at all but you won't get the bonus points unless your model is a replica of a U. S. Navy airplane.

For complete Navy Carrier rules, write to: Navy Office of Information, Room 4D-718, Pentagon, Washington 25, D. C. Three-view scale drawings (Continued on page 41)



Plymouth announces the **6th International Model Plane Contest**

AUGUST 20 THROUGH 25—DETROIT, MICHIGAN

Bigger, better, more exciting than ever, the 1952 "Olympic games of model aviation"—the 6th International Model Plane Contest—will be staged by Plymouth Motor Corporation in Detroit, Mich., next August 20-25.

There will again be superb flying arrangements for free flight events, with plenty of room and every facility for retrieving planes. There will be excellent condi-

tions, too, for speed, stunt, flying scale and carrier deck events. The annual banquet will again highlight the entertainment program.

The competition is divided into three different age groups: **Freshman**—8 years old, but not yet 12; **Junior**—12 to 15, but not yet 16; and **Senior**—16 to 20, but not yet 21. Ages are calculated as of July 1, 1952.

Here's a list of events and awards for 6th International

FRESHMAN

Outdoor Rubber (Unlimited)
Hand Launched Glider, Class A
Free Flight Gas, Class 1/2A
Control Line Speed, Class A
Control Line Stunt, Class ABCD

FRESHMAN AWARDS:

1st, 2nd and 3rd Places—Trophies
High Point—Trophy and \$100 Bond
2nd High Point—Trophy and \$50 Bond
3rd High Point—Trophy and \$25 Bond

JUNIOR

Outdoor Rubber (Unlimited)
Free Flight Gas, Classes 1/2A, A, BC
Control Line Speed, Classes A, B, CD
Control Line Speed, Jet
Control Line Stunt, Class ABCD
Control Line Scale, Class ABCD
Control Line Team Racing, Class B
Navy Carrier Deck
Combat

JUNIOR AWARDS:

1st Place—Trophy and \$100 Bond
2nd Place—Trophy and \$50 Bond
3rd Place—Trophy and \$25 Bond
High Point—Trophy

SENIOR

Outdoor Rubber (Unlimited)
Hand Launched Glider, Class A
Free Flight Gas, Classes 1/2A, A, BC
Control Line Speed, Classes A, B, CD
Control Line Speed, Jet
Control Line Stunt, Class ABCD
Control Line Scale, Class ABCD
Control Line Team Racing, Class B
Navy Carrier Deck
Combat

SENIOR AWARDS:

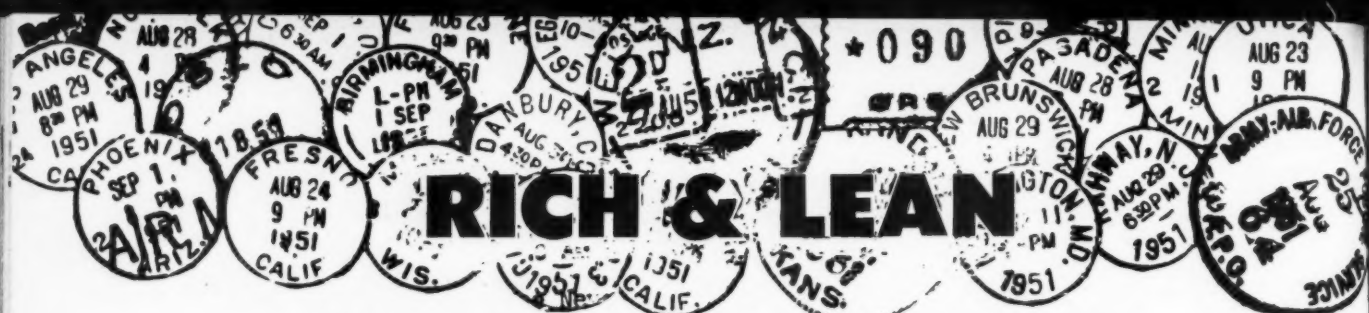
1st Place—Trophy and \$100 Bond
2nd Place—Trophy and \$50 Bond
3rd Place—Trophy and \$25 Bond
High Point—Trophy

A Youth Activity Sponsored by

Plymouth

MOTOR CORPORATION, DETROIT 31, MICHIGAN

• For complete details, rule books and entry blanks, see your nearby Plymouth dealer. Entries close July 27, 1952.



It takes all kinds of opinions to make the modeling world go round.

Set 'Em Up in the Other Alley

A gentleman of dubious faculties of observation has most vigorously and erroneously defended the indoor model's place at the Nationals. Taking note of his primary blast about indoors flopping and team racing needing a transfusion, we find that this, as he implies himself, is only an opinion; opinions are worthless unless based on the most logical procedure and he does not substantiate this one in any way. Thus, the gist of his letter in reference to this opinion is the refutation of something that does not need refutation. Nevertheless, his attack on this opinion is incorrect and distorted.

1) He mentions that team racing (which he has chosen to be the goat) has been greatly publicized and popularized while poor old indoors just struggles along without any outside support. What he fails to see is that this just demonstrates that team racing is more popular than indoors. Ask any manufacturer if he will back anything that is not highly popular . . . he'll tell you to stick your neck out.

2) Mr. DeLaMater stated that poor old indoors drew 96 entries at the nationals while team racing and stunt drew only 18 and 61 apiece, respectively. Again he overlooks an extremely obvious fact: Team Racing and Stunt are two, get that, two events while indoors has all sorts of ramifications of classes, types, etc. In these two events the hotshots of the country compete. Look at stunt. With guys like Palmer, Aldrich, Sage, Andrews and dozens of others getting within a half dozen points of perfection, what chance does that "amateur amateur" have? But indoors! Remember the last time there weren't enough entrants to take away all the prizes?

However, I agree on some of Mr. DeLaMater's points not in reference to indoors. Namely: free flight and the choosing of the national champion. As he mentions free-flight is ridiculously popular because of the luck element. Unfortunately he again distinguishes himself by making one of his bad judgments, for which he has won renown in his short epistle. Free-flight should be recognized for what it is. If it is to be for experts only (removal of the luck factor) we might as well let only three people enter in each class so everyone can win a prize, as in his poor old indoors. It is the luck factor that makes free-flight popular, that, and here is a sterling example, sets it off from a strictly experts' contest like indoors.

One last point: The only fair way to choose a national champ is to award the inverse number of point as contestants who flew. When you take a first out of 7 in indoors you get seven points; a first out of 200 in free-flight would give you 200 points. This means, the tougher the competition, the greater the reward. The only eminently fair way.

J. Gregory Krol
Cleveland, Ohio

Natch

Perhaps you would be interested to know that my brother writes that German teenagers are quite active in making and flying model airplanes. Herman is now stationed at a former air-field where there are plenty of "wide open spaces" for flying models, and several of his friends in the Army are very much interested, along with him, in making and flying models in their spare time. They plan on constructing models this winter and flying them in the spring when it is warmer. Herman mentioned M.A.N. magazine as being the "best one in its line," so I know he will be glad to start receiving it regularly.

I would appreciate it greatly if you would make all the arrangements as soon as possible, and send off his first copy in the very near future.

(Mrs. K.) Phyllis Kleeman
Elizabeth, New Jersey

Consider It Done

You would do the local club a big favor, if you would announce in your mag that the Salem M.A.C. is looking for members, beginners or experts. Contact Elmer Roth, Cherry City Model Aircraft, 21st and Market Streets, Salem, Oregon.

Don Santee
Salem, Oregon

Somebody Agrees

Was most interested in Bob Hatschek's comments on scale flying models in "Rich and Lean" column.

I am in hearty agreement with Bob Hatschek and others like Ted Entichnop that there is a definite place for the flying scale model in contests. I believe at long last we are in for a definite era of flying scale models.

I for one am sick of these pre-built, pre-flown models. Because of them we are seeing the older builders (open group) dropping out of the model picture.

It is true that a flying scale model takes

skill to build and fly, but there is nothing more realistic. I know there will be some who will complain that a 6 year old can't build them in an evening or two—but who cares?

From the standpoint of contests I would suggest that more emphasis be put on the scale appearance of these models. With the requirement on flying limited to smooth, stable flight rather than endurance.

What a shame it was at the '51 Nats that the beautiful Focke Wulf Stosser lost out because of a lucky 9 min. flight by a competitor whose model was in no way comparable from the scale standpoint. I'm not suggesting a return to "shelf models" but rather a realistic type of flight with a smooth take-off—pattern—landing. I would also suggest that the motor (rubber or gas) be left up to the individual builder, rather than kicking out rubber. Rubber is ideal for scale F.F. because of its wide range of power. I know from personal experience that AA can be very tricky—with disastrous results. Therefore why not let the builder choose his power plant? My scale Stinson L-5 is rubber powered and after some 100 flights it is in excellent condition, full color doped too.

Yours for more flying scale models of any type.

Chuck Wood
Seattle 6, Washington

Done Him Wrong

Got my copy of M.A.N. (March) today and didn't put it down until I had read it through, cover to cover. Still the best air mag for my money.

Oddly enough, though, I have one complaint to make, and that is that you are not doing right by us real W.W. 1 fans. Of course, we get an occasional "old" ship here and there, but how about some of the "not so popular" or well-known types of ships of both W.W. I vintage and up to the early thirties?

C. S.
Brooklyn

Diesel Fan

I enjoyed your article in Feb. Model Airplane News very much.

I have been flying English Diesels out here on the West coast for more than three years, now, and I got quite a kick out of your surprise at the amount of power that they develop. I own about 10 different ones of all different sizes, the long stroke jobs are a little smoother running and a little easier to start.

(Continued on page 58)



"THE
CHOICE
OF THOSE
WHO WANT
THE
BEST"

....ANOTHER Beautiful PLASTIC MODEL KIT

BY
Allyn



BOEING STRATOFREIGHTER

The Boeing C-97 Stratofreighter, holder of the transcontinental speed record for transports, carries troops and cargo, and serves as a tanker for refueling in the air, or as a hospital plane. The 74-ton giant has distinguished itself in the Korean war ferrying troops and equipment across the Pacific and returning wounded American soldiers.

\$249

Just picture any one or all of these planes on the shelf in your room — you'll want them all — so start your collection today.



BOEING STRATOCRUISER

The double-deck Boeing Stratocruiser, "queen of the airlines," links many parts of the world. It's the fastest, most luxurious airliner ever put in service.

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BOEING B-47 STRATOJET

The swept wing Boeing B-47, the world's fastest jet bomber, has proved itself to be outstanding in performance.

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DOUGLAS NAVY SKYSHARK

The A2D Skyshark is a powerful new attack bomber and is the first American attack type to successfully use turbine propeller power.

\$249

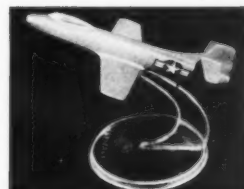
8 MORE EXCITING PLASTIC MODEL KITS BY ALLYN

Each model is an exact scale replica of the original plane complete with decals of insignia.

DOUGLAS NAVY SKYROCKET

Revolutionary research craft designed and developed for U. S. Navy at Douglas' El Segundo Plant.

\$179



DOUGLAS NAVY SKYSTREAK

This is the radically advanced airplane that captured two world's speed records in 5 days.

\$179

DOUGLAS C-124 GLOBEMASTER

Heavy-duty, all purpose transport. Perfect reproduction of this aerial giant of the USAF.

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DOUGLAS NAVY SKYRAIDER

The Navy's carrier-based attack bomber. The AD Skyraider is believed to be the most efficient and versatile airplane of its type.

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A fast, long-range fighter, adaptable as an attack fighter, long-range patrol or reconnaissance plane, or long-range fighter escort.

\$249



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RC NEWS

Maybe We've Got Something!

With pardonable pride, we report that CITIZEN-SHIP RADIO CONTROL has won 1st, 2nd and 3rd place

in the Canadian Nationals at Toronto last October and repeated the 1-2-3 place performance at the Tangerine Internationals at Orlando, Florida, the day before New Years.

Our CITIZEN-SHIP equipment has been available for about eighteen months and was competing with standard and makes of competitive radio control equipment that has been manufactured for many years; yet CITIZEN-SHIP sweeps the field and wins 1-2-3 in the two most recent large scale RC meets.



Vern Macnabb

Special acclaim was accorded our CITIZEN-SHIP equipment by our Canadian friends for its long range and ability to handle the planes on the "cross country" competition. This is no surprise to us. We have controlled planes almost out of sight.

All this in addition to the fact that our CITIZEN-SHIP equipment is the first and only equipment approved for operation on the Citizens Band requiring no "HAM" license, no code or technical examination.

CITIZEN-SHIP Radio Control is factory sealed and adjusted and guaranteed to fly "out of the box." Rugged, dependable. The new standard of RC flying.

Receiver PRICE REDUCED to

FREE FLIGHT

Citizen-Ship

RADIO CONTROL

On The Citizen's Band

\$29.95

RECEIVER Popularity of Citizen-Ship increased production. Was \$39.75 NOW \$29.95
TRANSMITTER completely self contained; factory adjusted, ready to use, less bat'ry \$39.75

Citizen-Ship SN escapement.....\$ 9.95
Good Bros. 4 position escapement.....13.50
Citizen-Ship Test Meter.....19.95

VERNON C. MacNABB CO.
909 Westfield Blvd., Indianapolis 20, Ind.

For RC Fans . . .

Just what you've been waiting for! Full-size (35" x 45") plans of two popular Radio Control models. Both plans 50¢ p.p. via 3rd class mail. (For 1st class add 10¢ and for air mail add 20¢ for postage & packaging.)

Order coupon on page 52

MODEL AIRPLANE NEWS
551 5th Ave., New York 17

Scrap Box

(Continued from page 5)

other dragged out a huge compressed air lbs., but the radio gear was almost identical. We didn't get a chance to see the Giant fly but Drever made several R.O.G. take-offs and flew a wild but well controlled pattern with most of the flights taking place under 50 feet.

One of the sportiest sport flying ships that we've seen in a long time made its appearance at the strip. Bill Wiley of Monrovia dropped in with his KC Cutie. This biplane was powered with a Wasp .049 and was the sport flyer's dream ship. Bill made all kinds of R.O.G. take-offs and even put a Jetex 100 on the belly of the ship for a fast Jato take-off. We particularly enjoyed the way the lower wing was rubber banded in place. No adjustment difficulties were experienced after the wing had been removed and installed again prior to his flights. This was another of the biplanes that flew right off the board. Bill says he's going to enlarge the plans for a radio job. Should do the trick, Wiley.

The Southern California Model Association, made up of some of the finest clubs in Southern California, will have held its 1st Annual S.C.M.A. Indoor Meet at the Santa Ana Blimp Base by the time this column hits the readers. Clubs such as the San Valeers, Thermal Thumbers, Hi Tailers, Flying Wheels, Lynwood Loopers, L.A. Radio Control Club, Orange County Thunderbugs, and others will back this type of flying now and in the future. Indoor flying has been sadly neglected for want of an area of contest proportions and the Blimp Base is a natural. Trophies and medals to fifth place in the Junior and Open events will be given. Hope this starts an indoor trend in the area. You can be sure that top men such as Holland, Atwood, Cummings, and many others will be there. The Thunderbugs held a final meeting for '51 to elect new officers and get in a bit of indoor flying. The models were limited to a definite size and in spite of the small building and 20' ceiling, times of over a minute were not uncommon before an obstruction was hit. Ray Vandewalker took high time and won a Torp .19.

This month's chuckle involves Floyd Carter of the Lynwood Loopers. Floyd stores some of his models under the bed. Seems the lad had a new Orwick powered stunt job which he stored there for safekeeping. One night the bed collapsed—no Orwick—no airplane! Why don't you take to "Doc" Savage, Floyd? He might find room for your ships in his house trailer.

Individual modelers and clubs who have information for the Scrap Box should address Jim Saftig, c/o Model Airplane News, 551 Fifth Ave., New York 17, N. Y.—Editor.

M.A.N. at Work

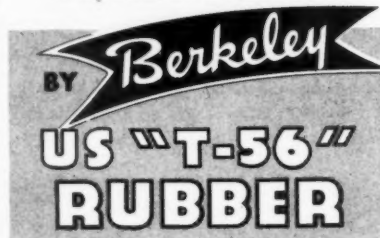
(Continued from page 8)

machine so old it had two crossed sticks for a prop with canvas covering of the resulting blades. This can get serious!

Approval of 27.255 by FCC means that fans will have to organize on field for in-turn flying. Disorganized rc flying is poison! . . . Took in Bernie Paul's hobby show for March of Dimes in Philadelphia. Bill Effinger, Berkeley, had along cute model of Savage with Jetex for boost in tail; also a ducted fan Sabre for .19's. Sterling had a couple of generous size profile scale control jobs, good for stunting. Die cutting of really thick wood. Amazing! Lots else, too, by all manufacturers. During dinner with Monogram's Jack Besser, Top Flite's Mike Schlessinger, Comet's Grace Vetter, and the Paul's Mr. and Mrs. team, Mike told MAN At Work that Top Flite made over a million props last year. America's favorite is the 9 x 6, followed by 10 x 6. Makes the writer 100 percent average! Really surprised—most agreeably—to see Testor add two kits to their Freshman-to-Senior Series, but at the lower end. Testor remembered there is a grade school, too. One, a clever

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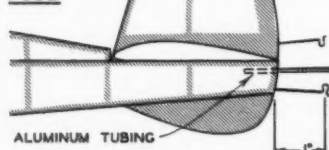
If no local dealer is convenient, mail orders will be filled by Berkeley Models Supplies, Dept. MA., West Hempstead, N. Y. Please include 25¢ packing & postage.

glider, the other a well turned out profile rubber R.O.G. Truthfully not grinding an axe but the industry is marked more and more by high grade designs and merchandise all across the board.

Ed Lorenz's two-tube radio proves fantastic. So far haven't bothered to tune. Walk out 150 feet, maybe 200 feet, and drop goes to half-tenth ma. Combined idle both tubes, less than five-tenths. Why go further? Not sensitive to tube combinations or to antenna lengths. If it idles, it works, perfectly. Far as you dare let ship get out. Ed put 125 feet of wire for relay lead just for fun. Still worked.

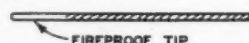
The End

SAFETY FUSE



PREPARE FUSE IN USUAL MANNER (BY SOAKING STRING IN SATURATED SODIUM NITRATE SOLUTION), LET DRY.

FILL A JAR LID TO A DEPTH OF ABOUT 3/4" WITH SODIUM SILICATE SOLUTION. ADD COLORED INK TO DYE IT, THEN DIP FUSE END IN FOR 30 SECONDS. HANG TIP DOWN TILL HARD. REPEAT A SECOND TIME.



FIREPROOF TIP

PLACE FIREPROOF TIP ABOUT 3/8 IN. TO RECEPTACLE. LIGHT AS USUAL. ELIMINATE HAZARD OF DROPPING LIGHT-ED ENDS.

We Didn't Forget the Kids

(Continued from page 12)

Even closing time, especially if the club meets at night so that the parents will know when to expect the boys home.

Have you ever tried to show a youngster of eight or nine how to cut a piece of balsa on a certain line? Why even some of the older ones have a job of it. What may seem like a simple job to the instructor often seems insurmountable to the youngster. Getting them to cut a perpendicular line is next to impossible. But they learn. It was found best to use all sorts of guides and patterns. Patterns of the wings, tail sections, were made for each group of five or six boys. Sanding blocks were used to good effect. The use of many coats of cement on all joints was stressed. We also found that the commercial razor-knives were quite safe for the boys to use. Pins were used wherever possible in order to hold parts together and speed up production.

Most of the youngsters have to be pushed; in a certain sense, they are lazy. They like to finish perhaps one operation and admire it for an hour, or walk around after they have done something and see how the other fellow is making out.

The sequence of construction should also be planned and reasoned out. In the case of our glider I had them build the tail section and then the body. I made the mistake of having them attach the tail section to the body—much time was wasted by the boys "flying" their wingless plane. The best policy, in any case, seems to be to have them make all the individual parts and assemble them at the last meeting. The old problem of making left and right handed wings cropped up. All sorts of systems were devised to make the boys aware of the mistake in making two right-handed wings, but we still had more than one turn up with what might be called natural turn built into their gliders.

One instructor for at least every six boys is necessary. Even big business recognizes this factor in leadership, and it is even more of a necessity in the case of getting the cooperation of young boys. This may sound like a problem; to get men or young boys to help the boys build who know enough about constructing the models themselves. In our case there were only one or two besides myself who had built models before. We had to use (and were thankful for their help) young fellows and men who had never cemented a piece of balsa together. We gave them a few pointers before each meeting on what there was to be done. There never seemed to be enough time for this thoroughness but we managed just the same.

Each instructor should have his own individual table for his group, separated from the others as much as possible to keep the noise factor as small as possible.

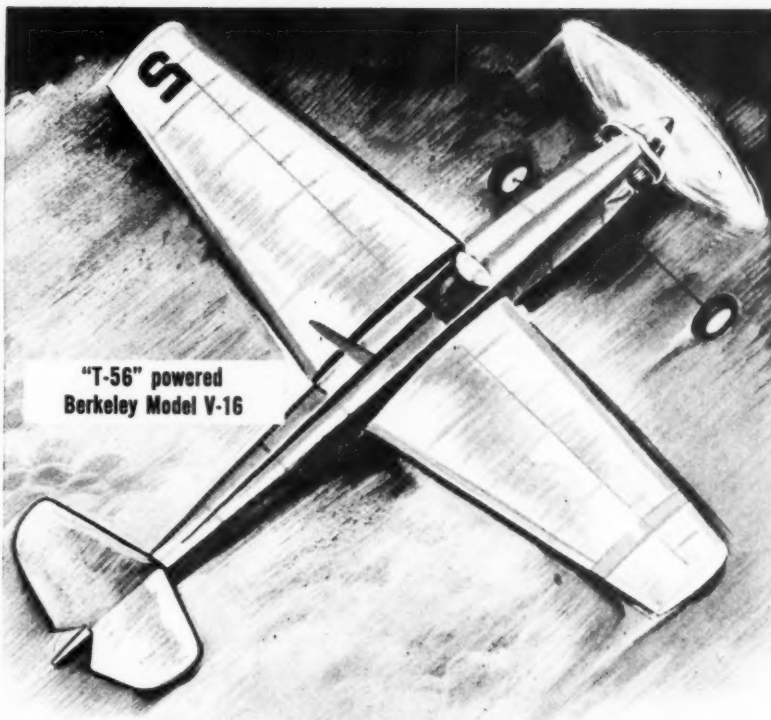
When the work period is over each boy gathers up his own materials and places them in his own box until the next meeting. No one is allowed to take his model home. The boys really put up a howl on this restriction but it is necessary or there would be no progress at all. They soon get used to the idea and, if they're interested enough, they can work on models of their own at home.

Our first glider contest was a roaring success. Did the wind blow! 'Twas in the early part of March . . . weren't we eager . . . so what could we expect? But times were as high as 37 seconds. Not bad for a youngster's first glider. And they went home all geared up to start another model.

For a while I was stumped. What model that had a propeller on it (they were insistent in that respect) could they all build? Then I thought of the old Grant Stability Model which, incidentally, was the first stick model that I had built. This design was simple, fairly rugged, and, as I remembered, was a pretty good flyer. I made one and brought it in to the next meeting, glided it and flew it for them and couldn't hold them back. I did make one change and that was the substitution of one of those Japanese pawlonia props for the hand-carved. Most of the boys would not have been able to carve an efficient propeller and something hard was needed up front to take a lot of beating.

The meets are run just as if it were one of those in the big leagues. Models are weighed

(Continued on page 40)



"T-56" powered
Berkeley Model V-16

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It's SPORT...

and it costs so little to fly a
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.045

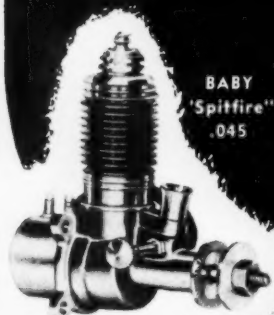


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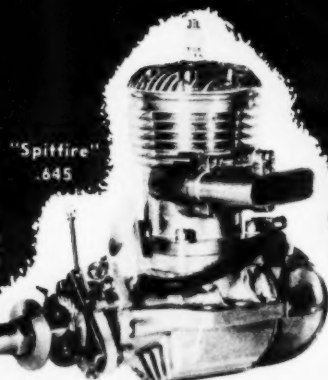
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"Spitfires" **F-65** Latest Jet Design and Performance

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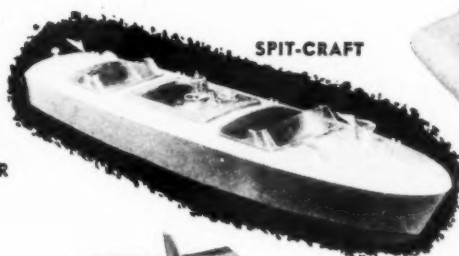
Assembly Time: 15 Minutes

- 28" Wing Spread
- 16" Fuselage
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- Finished in Silver

Have you seen these other members of the "Spitfire" family at
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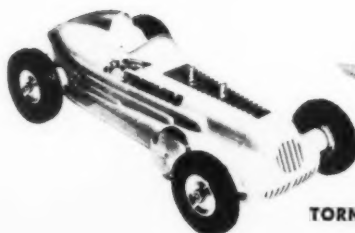
DUST'R



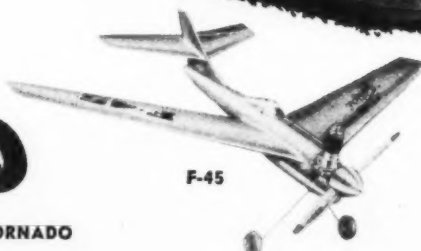
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Flying Model—authentically scaled
P40F CURTISS WARHAWK. **\$5.95**
CLASS B-C.

VIXEN—for .035 to .065 engines. 126 sq. ins. wing area; 21 1/4 in. span. Class 1/a for full stunt performance. **\$1.95**
VIKING—51 in. span, 11" chord, wing area 550 sq. in. **\$5.75**
Class C-D.
VAMPIRE—40" span, 9" Chord, wing area 360 sq. ins. **\$4.50**
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F&B HINGES—invisible, everlasting and they never pull loose. **30¢**
Per set

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3240 Larimer—Denver 5, Colo.

Plans 1914-18

3/16' SCALE

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Sopwith Pup | #2
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Humber Taub
Spad 7
Vickers Gunbus 9
N. E. 8
Sopwith Camel |
| #4
N. E. 12
Voisin
Albatross D. 5 A.
De Haviland 6
Albatross 1 | #5
Sopwith Triplane
Nieuport 28
Fokker Triplane
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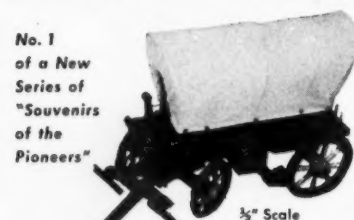
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TREASURE CHEST COVERED WAGON

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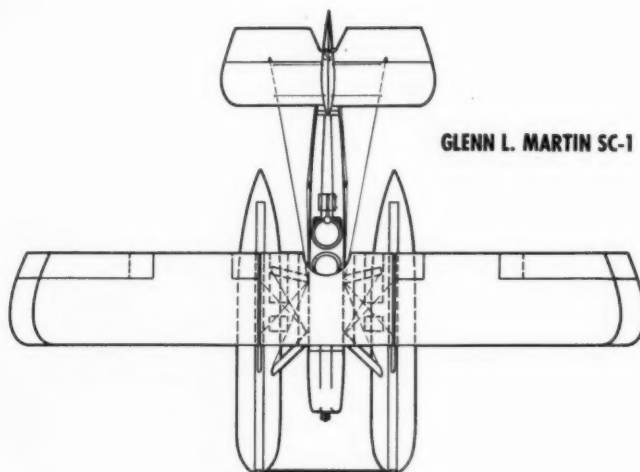
You'll be headin' West, Podner, on the Oregon Trail, Podner, when you start building your Treasure Chest Covered Wagon—the wagon that was home to lots of folks for months in the old Pioneer Days. A new de luxe kit complete with everything necessary to build a mighty fine display model! Parts of genuine California Redwood cut to shape, bows and fittings of bent metal, built-up wheels, working brakes, pick, axe, shovel, water barrel, etc.

A deluxe kit any Hobbyist can build and every Hobbyist will want to own

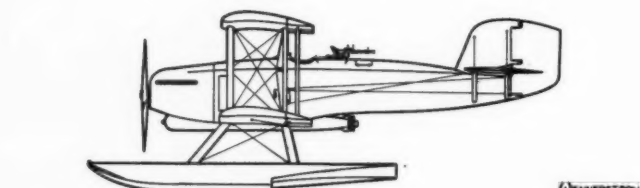
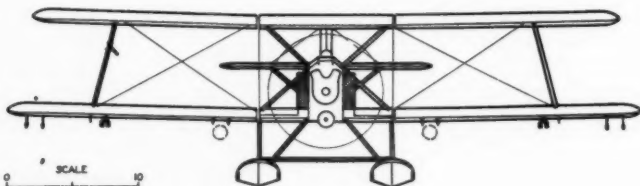
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GLENN L. MARTIN SC-1



WENNERSTROM

in; stop watches are used, and besides, workmanship is judged. Running the contest in this manner makes the boys more serious and cooperative.

The contests are really wonderful affairs both in satisfaction and enjoyment to the boys and instructors. It is a welcome and necessary break in the weeks of teaching and building. You can see in certain boys the knack of understanding and comprehension of the laws of flight in how they adjust their models. The future winners and experts are revealed.

Prizes? Give them trophies? Nah! How about a trip around the island in a Piper Cub? Gosh! Such a prize was given for our first meet this spring. Know what the prizes were for our final contest of the season in June? A whole week at a boy's camp in Connecticut. Now that's something to compete for. Yes sir! Oh, I almost forgot to tell you that the high times achieved with the Grant Stability Stick model were 54 secs; 48 and 42 secs.

Well, I guess you can sense the feeling of satisfaction I have had in getting this club going. It won't be long before these boys will be competing in the big leagues and bringing home the bacon. Better get busy in your own town while there's still time. THE END.

NO OTHER MODEL ON EARTH will give you the detail of a Dyna-Mo Solid!

Jam-packed with metal castings, every little detail visible in the actual airplane — every single item that can be reproduced — is given to you.



P-47 THUNDERBOLT . . . \$2.95

British Spitfire	\$2.75	P-51 Mustang	\$2.75
FW-190 Focke Wulf	2.75	F6F Hellcat	2.75
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NEW



F-51 MUSTANG

Unbeatable 38" Combat
Stunt Control Line Model

Kit S-2 for A, B, C Engines

only \$2.95

designed by
MATT KANIA

Another outstanding achievement by Matt Kania! If it's combat stunt flying you want—this is it! Designed and flight tested by one of the world's foremost model designers... and backed by Sterling's finest material and workmanship.

RESORTER "20" Kit B-4

Breathtakingly Beautiful and Completely Prefabricated!



ONLY \$3.25 Actual photograph of model built from kit. Length 12 1/2", Beam 4 1/2"

Authentic in every detail from the Century Boat Company's original factory plans! Completely die

SEA MAID "20" Kit B-5

It's a Clack to Build this Luxury Speed Boat!



Only \$2.95

Actual photograph of model built from kit. Length 12 1/2", Beam 4 1/2"

cut, with entire mahogany exterior and includes a complete set of ship fittings and drive unit. May be powered with any 1/4 A gas engine or electric motor.

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Monocoupe	\$4.95
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Mr. Mulligan	4.95
The Waco	5.95
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SE 5	5.95
Ryan S-T	5.95
The Maverick	1.00
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SCALE POWER BOATS	
Richardson	\$5.95
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AT YOUR DEALER'S NOW!

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models

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Philadelphia 22, Pa.

AMA News

(Continued from page 32)

of the F4U Corsair, F6U Pirate, F7U Cutlass, F8F Bearcat, FJ Fury, F9F Panther, F2H Banshee, AD Skyraider, and D558 Skystreak are available upon request from the Navy Office of Information.

NATIONAL AMA RECORD PENDING. Outdoor Hand-Launched Glider, Class A, Senior—19:29.0. Flights made by Bob Brawnner, Phoenix, Ariz., on January 27, using a model of the same design with which he set the previous record of 16:44.6.

NEW F.A.I. RECORDS. Just released by the Federation Aeronautique Internationale are these new records:

Orthodox Gas Models, Control Line Speed, Class III—231.270 km/h. (143.704 mph). Record set by Gerard Laniet (France) on October 25, 1951, using a Micron 60 motor of 9.87 cc. displacement. This record, since it is higher than any other control line speed record, is both a World record and World "Class" record.

Flying Wing Gas Models, Control Line Speed, Class II—155.509 km/h. (96.629 mph). Record established by Richard K. Sprague (U.S.A.) on October 7, 1951, using a McCoy 29 motor of 4.83 cc. displacement.

1952 WORLD CHAMPIONSHIP CONTESTS SET. The four World Championship Model Airplane Contests have been set on the F.A.I. contest calendar as follows:

July 4-7—Belgium—Control Line Speed Speed Championship; July 10-14—Sweden—Wakefield Rubber Model Championship; August 13-17—Austria—"Nordic" Towline Glider Championship; September 14 or 21—France or Switzerland—Free Flight Gas Model Championship.

CONTESTS APRIL

6—Taft, Calif. Taft Record Trials for FFG. Francis Stewart, Contest Director, 900 21st St., Bakersfield, Calif.

13—Lubbock, Tex. Lubbock Record Trials for all outdoor free flight events. Paul Gilliam, C.D., 1719 Broadway, Lubbock.

19-20—Sacramento and Los Angeles, Calif.; Seattle, Wash. Class AAA Wakefield Elimination Contests. Write to Dick Everett, 4621 55th St., San Diego, Calif., for information.

20—So. Weymouth, Mass. Eastern Indoor Record Trials for all indoor events. Edward G. Dolby, C.D., 33 Exchange St., Rockland, Mass.

27—Baltimore, Md. Class AA Cancer Fund Benefit Contest for radio control models; also demonstrations of all types of model flying. James F. Snyder, C.D., 3107 Normount Ave., Baltimore.

27—Lamar, Colo. Plymouth Dealers' U-Control Meet for CL, CLS, and combat. Herbert W. Brown, C.D., 304 S. 3rd St., Lamar.

MAY

4—Easton, Pa. Model Airplane Doctors' Record Trials for FFG, OR, TLG, and CL. Joseph Groman, Jr., C.D., R.D. No. 2, Easton.

4—Kansas City, Mo. K. C. Mo-Hawks' Free Flight Scale Gas Model Contest. Write to Robert C. Swanson, 1413 E. 45th St., Kansas City 4, for information. Pending.

4—Taft, Calif. Taft Record Trials for FFG. Francis Stewart, C.D., 900-21, Bakersfield, Calif.

11—Perth Amboy, N. J. Perth Amboy Aero Club U-Control Meet. Write to Stan Koch, 113 Brighton Ave., Perth Amboy, for information. Pending.

18—Willow Grove, Pa. Class A Bucks County Federation of Model Airplane Clubs' Meet for TR. Entry is restricted to residents of Pa., N. Y., N. J., Del., and Md. Frank Horn, C.D., 411 E. Newton Rd., Hatboro, Pa.

24-25—Boston, Mass. Class AAA New England Wakefield Elimination Contest. Edward G. Dolby, C.D., 33 Exchange St., Rockland, Mass.

24-25—Chicago and Galesburg, Ill.; Minneapolis, Minn.; Dallas, Tex.; Detroit, Mich.; and Kansas City, Mo. Class AAA Wakefield Elimination Contests. Write to Ed Lidgard, 814 Bryan Street, South Bend, Ind., for information.

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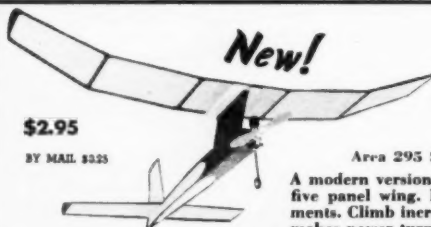
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CLASS A .009

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24-25—Atlanta, Ga., Norfolk, Va., Cleveland, O., New York, N. Y., and Baltimore, Md. Class AAA Wakefield Elimination Contests. Write to William Fletcher, 8708 Grand Ave., Elmhurst, L. I., N. Y., for information.

30—Bristol, Pa. Class AA Bristol Aeromodelers' 3rd Annual Flying Circus for TR, CLS, CLFS, combat, and OHLG. Clarence F. Wells, C. D., 1300 Dixon Ave., Croydon, Pa.

JUNE

1—Taft, Calif. Taft Record Trials for FFG. Francis Stewart, C.D., 900-21 Bakersfield, Calif.

8—Lexington, Nebr. Class AA Nebraska State Stunt Contest. Donald R. Ross, C.D., Lexington.

8—Bethpage, L. I., N. Y. Class AAA Ltd. 7th Annual Mirror Model Flying Fair for CL, CLS, FFG, PAA Load, PAA Clipper Cargo, beauty, RC, combat, TR, and Navy Carrier events. For entry blanks, write to: Director, Mirror Model Flying Fair, New York Mirror, 235 East 45th St., New York 17, N. Y.

8—Cape Girardeau, Mo. Class AAA Ill-Mo-Ky Control Line Contest for CL, CLS, combat, and scale. Ernest E. Miner, C.D., 541 So. Hanover St., Cape Girardeau. Pending.

15—This is the deadline for completion of all Air Force Base Elimination Contests.

14-15—Atlanta, Ga. 14th Annual Southeastern Model Airplane Contest. Pending.

15—Rockford, Ill. Class AA Rockford Model Contest for FFG, OR, and RC. H. E. Heminger, C.D., 836 Diamond Ct., Rockford.

15—Minneapolis and St. Paul, Minn. Annual Talent Scout Meet. Pending.

22—Lebanon, Pa. Contest for control line and free flight events. Kenneth F. Carpenter, C.D., 751 N. Hanover St., Lebanon. Pending.

28—This is the deadline for completion of all Air Force Command Championship Contests.

28-29—Detroit, Mich. Class AAA Michigan State Exchange Model Airplane Meet. Pending.

29—New York, N. Y. Class AAA Gas Monkeys' Fifth Annual Championship Contest for FFG and PAA Load. Ernest V. Roff, C.D., 56 Stuart Ave., Malverne, N. Y.

JULY

4—Anchorage, Alaska. Pending.

4—Peoria, Ill. Class AA Peoria Control Line Contest. Morgan Baldrige, C.D., 327 So. Washington St., Peoria 2. Pending.

6—Baltimore, Md. Baltimore Plymouth Contest. Pending.

9-15—Amarillo AFB, Tex. Air Force World Wide Model Airplane Championships. Entry is restricted to top qualifying men in each of the Air Force Command Championships.

13—Minneapolis and St. Paul, Minn. Plymouth Meet. Pending.

26—Portageville, Mo. Class AAA Rotary-Plymouth Meet for CLS, CL, combat, and stunt scale. W. C. Kroeger, C.D., Portageville.

AUGUST

3—Waynesboro, Pa. Class AA Second Annual U-Control Gas Model Meet of Waynesboro for beauty scale, CL, CLS, combat, and RC. John A. Otter, C.D., Route 3, Waynesboro.

3—Minneapolis and St. Paul, Minn. Class AAA PAA Load Meet for PAA Load, Clipper Cargo, and demonstration RC. Lytton Calrow, James Lightfoot, and Walter Billett, C.D.'s., 2548 Nicolet Ave., Minneapolis.

3—Cleveland, O. Class AA 5th Annual AA Free Flight Contest. John W. Grega, C.D., 10422 Gay Ave., Cleveland 5.

10—DeKalb, Ill. Class AA DeKalb Cloud Dust-ers' Annual Flying Circus for FFG and OR. Dutch Hess, C.D., 137 1/2 E. Lincoln, DeKalb.

10—Lancaster, Pa. Lancaster Model Airplane Contest. Paul Liller, C.D., 426 W. Chestnut St., Lancaster. Pending.

20-25—Detroit, Mich. Class AAAAA Ltd. 6th International Model Plane Contest for OR, OHLG, FFG, CL, CLS, CLFS, TR, Navy Carrier, and combat events. See your Plymouth dealer for information.

31 & Sept. 1—Pawtucket, R. I. Class AAA 6th (Continued on page 44)

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Republic P-47 Thunderbolt	Lockheed P-38 Lightning	Sikorsky HO-4 Transport

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America's leading stunt plane

Once again designer Lou Andrews and "Buzz" Ferguson win top honors at the Nationals, thus repeating their outstanding triumph of 1950. Under a blazing Texas sun, the Barnstormer successfully withstood the stern challenge of some of

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1950 NATIONAL OPEN STUNT CHAMPION
1948 INTERNATIONAL OPEN STUNT CHAMPION



\$5.95

SPECIFICATIONS

Wing Span 47 in.	Weight approx. 26 oz.
Wing area 470 sq. in.	Speed 60 to 75 M.P.H.
Length 30 1/2 in.	Engine23 to .35 disp.

First in '50...now first in '51

A JUNIOR VERSION OF THE STUNT CHAMPION BARNSTORMER

CLASS 1/2A Baby BARNSTORMER

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Wing Span 23 1/2 in.
Wing Area 118 sq. in.
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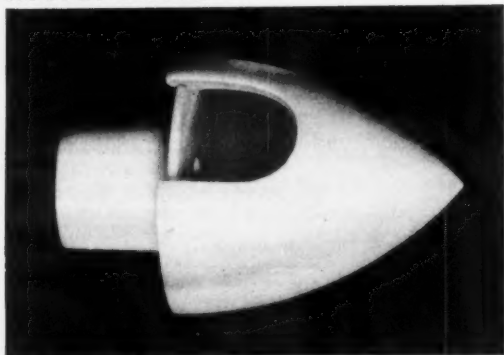
The ideal stunt ship for 1/2A enthusiasts.
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For instance, we are experimenting with wrist pins, connecting rods, rear covers, and crank cases. These parts will make engines lighter, faster, more powerful and vibration-free! When proven, they will be turned over to engine manufacturers so you can have better engines tomorrow.

Sullivan Products

PHILADELPHIA 33, PA.

Annual All New England Model Meet for all events except OHLG and Navy Carrier. Arthur C. Bergeron, C.D., 55 Ricard St., Seekonk, Mass.

SEPTEMBER

1—Far Hills, N. J. Class AA Bedminster—Far Hills Lions Club 5th Annual Control Line Meet. James T. Christian, C.D., Dunwalke Farm, Far Hills. Pending.

Key to Listing of events: FFG—Free Flight Gas; CL—Control Line Speed; OR—Outdoor Rubber; TLG—Towline Glider; IR—Indoor Rubber; OHLG—Outdoor Hand-Launched Glider; IHLG—Indoor Hand-Launched Glider; CLS—Control Line Precision 'Stunt'; CLFS—Control Line Flying Scale. RC—Radio Control; TR—Team Racing.

Contests designated "Pending" mean the application is before the proper authorities as we go to press; "Record Trials" mean no prizes, but a chance at cracking the records; "Class A" is a meet with restricted entry; "Class AA" is a meet with unrestricted entry; "Class AAA" is a state-wide or regional meet; "Class AAAA" is a national or international meet.

20 YEARS AGO

With the May 1932 issue of M.A.N. the modeling movement seemed to have gone almost entirely flying scale. In the late twenties and early thirties flying scale was exclusively a World War I proposition but either the boys had run through all the early crates or else they discovered belatedly that later vintage aircraft made even better flying models. Big model deal of that month was the Supermarine S6B Schneider Trophy seaplane, whose neat lines for a prop and float craft have never been beaten. That was the machine that averaged 404.8 and hit 415.2 on one lap. So there was a painting of this plane on the front cover, a solid model and article inside and Cleveland Model & Supply featured it in their ad—we are drooling right this minute over the picture—along with the Hawker Fury, GeeBee Sportster, and Howard Racer, the latter a buck item.

Scientific had a page to display a \$1.50 model of an autogyro—it flew—and a Gee Bee D and Monocoupe 110 at \$1.25. Every kind of a crate, of all lands and years, could be found in scale form by some manufacturer. Some manufacturers that long since faded into the past offered just one, like a Curtiss A-8, others, like Ideal, still around today, featured a dozen or more. An occasional twin pusher still hung on and you could even get a model of the dirigible Akron.

Old timers who think they remember names can play with these: Hub, Dallaire, Universal, Red Bird, Hawthorne, Woburn, Ace, Canton Miniature, Lawrence, Madison, Moskito, Silver Flash, Pioneer, Selley, Meyers, Peru, Country Club—remember? Take Pioneer. Ever build one of those superlight flying scales? The Pete, Laird, or the Bellanca, perhaps?

Editorially, there were some pretty nifty numbers, too, just as there are in this May issue 20 years after. Howard McEntee's rubber-powered Polish fighter was another classic of its time. Jerry Kittel had a sterling indoor R.O.G., the type of ship the experts today realize is needed in a hurry to save indoors. Plans were full size, for a 16-inch tissue-covered ship that did 5: 56.2. Even this 20 year old construction would prove tough for any but natural indoor builders for its motor stick tapered to 1/64"—take a peek at a ruler! Charlie Grant hit his stride and was running strongly with a wallowing four-pager about the "Secrets of Propeller Design." In those days, secrets needed deflation especially because a model-builder then had to carve his own props and could do so hands tied behind back—practically. Charlie gave them the business: pitch, diameter, blade angle, and so on. Hardly anybody was an expert then, whereas now hardly anybody isn't, so Charlie's words of wisdom were like rain in the desert. Full scale stuff was hanging on, too. Capt. Leslie S. Potter was up to chapter 11, with his course on radio. Imagine what would have happened if radar had come along in time?

THE END.



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Greatest power output of any 1/2 A class engine

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Powerful Class A Performance

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Here is my contribution of \$.....
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The Curtiss Racer

(Continued from page 30)

giving Day, 1920. To stimulate American aeronautics, then suffering from the post-World War I slump, the coveted Pulitzer Prize race was offered as the incentive. The course was 132 miles in length, laid out over a 33-mile circuit. The day of the race, 63 entries lined up for a crack at the valuable trophy. It was a free-for-all race—like the Thompson—and anything that had a chance was represented.

This included the Army and Navy. The Army had completed, in time, the Verville-Packard racer, which won at 156 mph, piloted by Lt. C. C. Moseley. A stock Thomas Morse MB-3A took second, a W. W. I. Ansaldo S.V.A. pursuit placed third.

Next year, the Services went at it with vengeance. The Navy entered, and won with a special Curtiss biplane, flown by Bert Acosta at 176 mph. In 1922, the battle really was on. Navy entered its 1921 planes, reworked, but the Army had Curtiss build the R-6, based on the Navy racer. The R-6 won at 205 mph, piloted by Lt. Russell Maughan.

In 1923, the Navy bounced back with two new Curtiss racers, models R2C-1, in which Lt. Al Williams walked away from the year-old Army jobs at 243 mph. In 1924, the Navy, apparently satisfied, did not enter at all. The Army won easily at 216 mph with a Verville, Sperry monoplane, a very disappointing performance.

By the time of the 1925 Pulitzer, Service

racers had become a serious matter of dollars and cents. Neither Army nor Navy could afford to buy racers individually, so they joined forces, and bought four new Curtiss models R3C-1 between them.

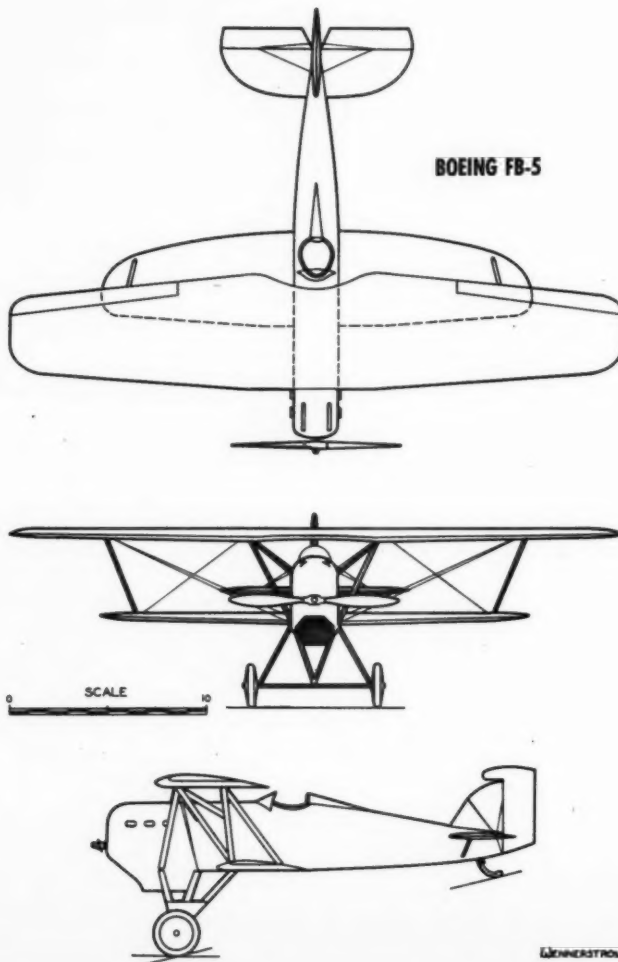
One of the four was used for static tests. The Army and Navy took one each for flying, and the fourth ship was fitted with pontoons. As far as the Services were concerned, this was it.

The trials and tribulations encountered in developing high speed aircraft in the early 1920's are well documented, beginning with the Curtiss R-6, built for the Army. Little is known of the previous Navy Curtiss racer, but two examples of the model R-6 were built under Contract No. 552, dated May 27, 1922 between the Army and Curtiss. Safety requirements were the same as for Type I (pursuit-watercooled) aircraft, and the Curtiss D-12, 375-hp V-12 engine was specified. Speed specifications were interesting, in view of today's speeds. The R-6 craft were required to have a sea level top speed of 190 mph, and a landing speed not in excess of 75 mph. The craft bore procurement Nos. 278 and 279.

Both planes were finished in September, 1922, four months after the start of the project. As usual with aircraft, even in this day and age, they were overweight. So, to reduce landing speed to the required 75 mph, Curtiss built up the axle fairing to a lifting section and increased its area enough to give the desired effect.

P-278 was flown September 27 at Mineola, averaged 211.4 mph over the one kilometer

BOEING FB-5



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A MODEL SPECIALLY DESIGNED FOR R/C TRAINING!

The Facts...

The "Live Wire Trainer" has been especially developed for R/C training. It's STABLE, RUGGED and MANEUVERABLE, yet simple to fly. Its design allows the use of ANY RADIO including the "Citizen Ship", yet it is as simple to assemble as any "stunt" model! You will marvel at its realistic flight as it performs ALL of the maneuvers without climbing tendencies and returns to the launching point for a spot landing in spite of the wind!

Can be flown as a Sport model without R/C!

The Specifications...

Wing Span . . . 48"
Wing Area . . . 432 sq. in.
Wing Loading . . . 12 oz./sq. ft.
Weight with R/C . . . 35 oz.
Power . . . Any .09 engine, diesel or glow
Dural Landing Gear
Closely matched power on and off flight speeds

YOU TOO CAN FLY
R/C with a "Live Wire"!

Exclusive Features!

REMOVABLE R/C UNIT

- ★ Remove entire radio gear in less than one minute!
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course. On October 2, P-279 made 219.4 mph over the same course. After the planes took first and second places in the 1922 Pulitzer, P-279 was flown at an average speed of 224.05 mph over the same course by Brig. Gen. Billy Mitchell, a world's record at the time.

Both planes were re-worked during the winter, and between March 21 and 29, 1923, new speed trials were made at Wright Field (then McCook). A propeller designed by the Engineering Division at McCook permitted P-279 to establish a new record of 236.598 mph during this period.

During September, 1923, both planes encountered a series of mishaps. Readied for the 1923 Pulitzer, they placed very poorly compared to the Navy R2C-1 which won. By the time of the 1924 Pulitzer race, both planes had been practically re-built.

The story of the R-6 racers ended abruptly at the beginning of the Pulitzer on October 4, 1924. Captain Skeel, piloting P-278, entered a shallow dive at 300 ft., with the idea of leveling off at about 100 ft. at the starting line. What happened never will be known.

But a failure occurred in the air during the dive, which caused the ship to disintegrate completely before hitting the ground.

While the R-6 racers led up to the subject of our discussion this month, another Curtiss racer was going on test about the same time. It was the R2C-1, in which Lt. Williams won the 1923 Pulitzer. The Army ordered an identical ship for evaluation purposes, identified it as the R-8. While this aircraft was merely a link in the story—it played no important part—it did prove a point, tragically. Late in 1924 it was put through a gruelling flight test during which one of the interplane struts developed flutter and finally failed, causing the plane to crash. Struts on the R-8 were made up of wood laminations. The inner layers of the laminate were cut out to save weight and formed a hollow structure. As a result, struts on the R-6 jobs were replaced with solid struts, and the same type were fitted to all subsequent racers of the series.

The R2C-1 aircraft—or Army R-8—did, however, establish a new world speed record of 263.59 mph, piloted by Lt. Williams.

Performance of the R2C-1 was really something to write home about. Powered by a Curtiss D-12A engine of 488 hp, it had a top level flight speed of 266.59 mph, stalled out at 75 mph. Its time of climb was, for those days, sensational—and not bad for propeller driven planes, either. It reached 5,000 ft. in 1.6 min. 10,000 ft. in 3.6 min.; 15,000 ft. in 5.8 min. and in ten min. it could climb to 20,900 ft. Service ceiling of the R2C-1 was 31,800 ft., which means its absolute was somewhat more than that!

During 1925, model R3C-1 was constructed. It was very similar to its predecessor, but contained a number of refinements. Its engine was the big Curtiss V-1440 12-cylinder type which had been developed from the D-12A and was the predecessor of the famous Conqueror engine of the late 1920's.

Construction was basically the same as that used in previous models. The fuselage was built up of a light structure of four longerons attached to bulkhead type formers. This was covered with a plywood veneer, applied in short, two-inch strips tacked to the frame at

ACME BRASS TANKS CHOICE OF CHAMPIONS

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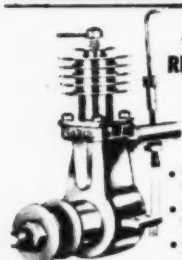
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Landing gear was a simple affair consisting of two legs which came together at a common fitting at the bottom of the fuselage. Their lower ends were separated by a thin-sectioned built-up spreader bar. The gear was braced on each side by fore and aft streamlined steel wires. The wheels were fitted with thin, high-pressure tires, over which was applied a cover of canvas and a large, flat aluminum hub cover to improve the streamline.

Fixed vertical and horizontal surfaces of the empennage were framed in wood and covered with a two ply laminated spruce veneer about 3/32 in. thick. Elevators and rudder were wood frames, fabric covered.

Wings of the RC3-1 were extremely interesting. They were, in effect, lifting radiators. Wing frames were of conventional two-spar construction with plywood tips reinforced with fabric. Inboard of the tips in both upper and lower wings, however, the wing surfaces were devoted to radiators. Heat dissipating was accomplished by pumping hot water from the engine through thin brass shells built over the basic rib structure and replacing the normal covering. The brass sheeting was .004 and .005 inch thick, the entire system holding 12 gallons of water.

Tiny ailerons in both wings were set into the trailing edge of the tips. They were actuated by a tube and horizontal crank control located entirely within the wing. Airfoil section of the R3C-1 was the Curtiss C-80, developed especially for racing at Curtiss and M. I. T.

Upper and lower wings were connected by solid laminated wood, milled to a thin, symmetrical cross section and "T"-shaped in profile. Lift and drag wiring was of the solid streamlined type, fitted with anti-flutter bars.

Engine of the R3C-1 was rated at 565 hp at 2400 rpm, but actually developed 619 hp at 2525 rpm. A high pitch Curtiss-Reed drop-forged dural propeller was used. On previous racing types, wood props were fitted.

Both the Army and Navy examples of the R3C-1 were entered in the 1925 Pulitzer Race. Lt. Cyrus Bettis flying the Army job, and Williams at the controls of the Navy racer. Bettis came in first with a speed of 249.342 mph, and Williams second with a 241.71 mph average over the course. Thus came to an end the famous Pulitzer competition, and the finale to a bitter struggle between the Services for high speed.

That wasn't all that was to be heard from the Curtis R3C-1 racer, however. Fitted with pontoons, it became the R3C-2, and became America's entry in the 1925 Schneider Seaplane Trophy Race. As in the beginning, Doolittle and Williams flipped a coin to see who would fly the R3C-2—but unlike the first flight of the landplane version, Doolittle won. Also he flew a brilliant Schneider race to win the trophy for the United States. His speed over the water course was 232.57 mph for the 350 km sprint.

As can be expected, the R3C-1 and R3C-2 aircraft were capable of a remarkable show of performance. Although the R3C-1 landplane was about a mile and a half slower than its predecessor, it could outclimb it, reaching 5,000 ft. in 1.46 min.; 10,000 ft. in 3.29 min. and 15,000 ft. in 5.75 min. It climbed to 20,000 ft. in 10 min., and had a service ceiling of 26,400 ft.

Respective performance figures for the R3C-2 seaplane were: 2.02 min.; 4.76 min.; 9.06 min.; 15,800 ft. and 21,200 ft.

These racers, primitive as they may seem compared to today's standards, were research "on the wing." Lessons learned from their successes—and their failures—helped mold U. S. service aviation into the fine weapon it is today.

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The Sky Wing

(Continued from page 23)

the leading edge at the specified rib and the trailing edge one rib outboard, as specified on the plans. This is absolutely essential to the success of the plane. The center dihedral break is made by first cementing the dihedral shims to the leading edge. The shims may be made from the same stock as the leading edge. The wing is then jugged to the proper dihedral angle and the 1/16" plywood dihedral reinforcements W-3 added to the leading edge at the three wing breaks. No shims are needed on the tip dihedral breaks. Cement all dihedral breaks well with two or three coats, allowing each coat to dry. Cement gauze to the three trailing edge breaks and the center leading edge wing break. Cement all trailing and leading edge breaks two or three times. Some builders may prefer to leave out the diagonal rib running from the leading edge tip dihedral break to the trailing edge tip dihedral and, instead, substitute a 1/16" x 1/4" strip to maintain the bottom contour, as was done on the original plane. However, the covering job will probably not be as easy since three pieces of paper will be needed to cover the top of the wing half instead of two.

Cut out the fuselage sides, bulkheads, and rudder from hard 1/8" sheet balsa, notching the fuselage sides to receive the wing leading and trailing edges. Note the grain direction on all these items. A good grade of hard 3/32" sheet can be substituted. Assemble the fuselage sides and the bulkheads, locating bulkheads F5 and F7 accurately since they will be also cemented to the leading and trailing edge of the wing. Slip the fuselage on to the wing and cement well, whenever they meet, four or five times. The firewall and 1/16" diameter music wire and one-inch diameter wheel landing gear may also be added at this time. A two wheel gear is optional. Be sure to cement this assembly well since it takes a lot of abuse and is also in the immediate vicinity of the fuel. Spacers to fill in the notches cut in the fuselage side to receive the wing are added. Hard 1/16" sheet forms the top and bottom of the fuselage. The rudder is cemented in place. The elevators, hard 1/16" sheet balsa, are added and the soft aluminum hinges to the elevator and rudder trim tab. Cement the 1/4" inch root rib W-1 to the fuselage. This is made 1/8" thick to make the covering easier. To absorb scuffing during take-offs and landings, a strip of hard wood, a small wheel (dummy if desired), or a metal skid should be placed at the rear end of the fuselage and at the trailing edge tip dihedral wing breaks.

The wing may be covered with the desired material. Starting with the inboard panels, cover with the grain of the paper running parallel to the leading and trailing edges. Spray with water, let dry, and dope. Trim the craft with the desired decorations and fuel proof. For realism add a bubble canopy. If a clear plastic canopy is unobtainable, one made from a block of soft balsa and painted silver will do.

Now the plane is ready to fly. Check to see that the wing panels are unwarped. If warps appear, they may be removed by steaming, redoping, or refuelproofing, or painting with a coat of thinner, and twisting the wing opposite to the warp until dry. The plane should balance as shown on the plans. Add weight to the nose or tail if necessary. Pick a calm day for test flying. Early morning or late evening. Hand glide the plane in tall grass. If the plane is nose heavy, trim with up elevator; if tail heavy, trim with down elevator. Now the plane is ready for powered flight. With the propeller on backwards to cut down on the thrust for test flying, launch the plane into the wind in a level flight attitude. The motor run should short, from five to ten seconds. Make the necessary adjustments to trim out the glide. The plane should be adjusted to have a circling glide, preferably to the right. When this is accomplished the climb may then be adjusted by adding side-thrust or down-thrust as necessary. The propeller may then be put on properly and the final adjusting accomplished. Once the proper position of the trim tabs are found, it is strongly urged that they be cemented in place to prevent their being accidentally moved.

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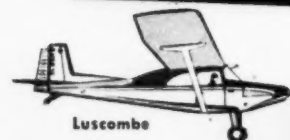
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The Challenger

(Continued from page 26)

ence between the Fox and the other engines. The fourth and present version of the Challenger sports the new British E.D. 246 c.c. displacement Diesel engine. This engine has a displacement equal to .21 cubic inches and is at the bottom of the displacement allowance of the present A.M.A. Team Racing rules (which at present allow from .201 cubic inches to .300 cubic inches displacement). With this engine we designed and built the new type pressure cowl shown in the plans and pictures. Basically the model is the same except for the cowl. With this combination the model does approximately seventy mph using a higher pitch prop than the other engines. If you haven't had any experience with Diesel engines, running one will be quite an experience for you. They run slower than glow engines and with much less noise, however they develop greater torque and consequently can turn over a higher pitch prop.

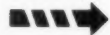
We used a Power Prop of nine-inch diameter and eight-inch pitch, turning over approximately 7000 rpm on the ground. We are still experimenting with various props and hope to boost the speed even more. However, the advantage of using a Diesel engine is in ECONOMY of fuel, which is of greater importance than rpm, speed, etc.—the outstanding feature of this engine-plane combination is in the number of laps it does on one ounce of fuel. It does between 60 and 65 laps depending upon the fuel and needle setting.

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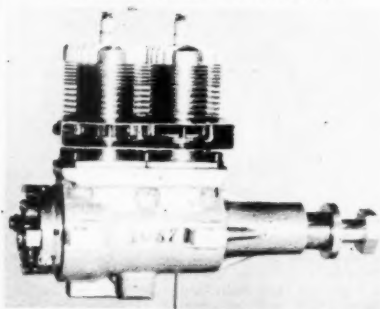
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The average glow plug model of 29 cubic inches displacement developing peak power normally does between 30 and 40 laps, depending upon the same variable factors (fuel and prop).

The Challenger refuels only twice in a 140-lap 10-mile race compared to four times for the average team racer in the same race—giving a definite advantage in duration. The pressure cowl has proven advantageous for team racing and not only helps make this model a beauty but allows the engine to run cool. Consequently starting is easier after landing and refueling. The engine does not overheat when waiting for the other pilots to get their engines going before the start of a race.

Team racing rules call for a built-in engine shut-off to enable the pilot to shut off the engine when desired or necessary. The shut-off system used on this model is fool proof and reliable. The plans show the installation for a K & B Sure Stop shut off, although a Berkeley D-E shut-off also can be used. The system requires a sharp down-elevator movement to cut the motor. This system allows for a free full-up elevator for emergency pull ups or levelling off sharply after a dive. To use the cut off, simply climb the model slightly than snapping down elevator to cut the engine, then levelling off and bringing the model in for a normal landing. We use a bicycle spoke and cap nut for operating the cut off and allowing for adjustment for varying degrees of down elevator movement before having the shut off operate. File the cap nut to a taper to fit under the shut off spring, so that it will slide inside the U bend of the K & B shut off spring until the degree of down elevator movement is made to operate the shut off. The D-E cut off can be operated similarly, depending upon its mounting and location; a little ingenuity will make you a fool proof installation.

Another feature of the Challenger is its replaceable tailskid—a necessity for a team racer. Details for installation are shown on the plans. You will note that the skid is held to the model with two bolts which allow for simple replacement. Ordinary 1/16" steel wire is used, making sure that the doubled portion

of the wire extends through the fuselage to allow for a solid skid mounting within the fuselage and shock absorbing qualities on the protruding portion of the skid itself. Remember that the weakest portion of the skid is at the bend coming out of the fuselage—so make sure this is double wire, soldered together. The loop at the end of the skid is made by wrapping the wire around a drill bit or using round nose pliers to form the loop.

The model itself is conventional in construction and the plans show the method of construction. All the wood used on the model should be straight grained medium-soft balsa, except for the tail surfaces which use medium to hard balsa, to help take punishment on nose overs, and occasional cart wheels, etc. The engine bearers should be of very hard wood, maple preferably. Make the wing first; cut all the ribs to shape as shown on the plans, then mark off the spars, leading and trailing edges, and assemble the wing. Mount a bell crank of the bushing type, such as the Perfect Small Bell Crank as shown. Use either flexible lead out wires or stiff .202 wire from the bell crank out the left wingtip. Check for free action of this assembly. Sheet the leading and trailing edges and cap strip the ribs on top of the wing only as shown. Sheet the center section then sand to smooth contour. Cut out a piece of the sheet center section to fit in the 1/16" wire control push rod. Cover the wing next with silk or Silkspan then clear dope and sand to a smooth finish.

The fuselage is started by cutting the sides and formers as shown. Cement the engine bearers to the fuselage sides with a good grade of model cement or Weldwood. Form and attach the steel wire landing gear to the plywood former with hook bolts (J type). Cement the fuselage sides to the plywood former and former then hold the rear of the fuselage together with a clothespin and cement. Make the tail skid as shown and mount to the plywood plate and cement securely in place. Slide the wing through the cut out in the fuselage sides and center in place. Use cement liberally on this assembly to prevent vibration damage. Slip the pre-bent control push-pull rod into the bell crank. Form and



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SKY WING, pg. 22 & CHALLENGER, pg. 27

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HALF WILD GOOSE: An extraordinary Half-A free flight that won 11 firsts during 1950 including its event at the Nats. (Dec. '51 issue.)

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EL DIABLO: A distinctive stunter for engines of .19 to .35 displacement. (March '52 issue.)

TRI-PACER & PLAYPLANE: Here are two jobs. The Tri-Pacer is a scale U-control Piper for .065-.09's; the Playplane is an all-balsa free flight biplane for .049's. (March '52 issue.)

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WINDY JOE for .09 power and JAVELIN (cabin type) for .19 power. 50c p.p. (for 1st class add 10c and for air mail add 20c for postage & packaging.)

solder in place the cut-off push rod to the regular push-pull rod as shown on the plans.

Attach the top and bottom sheets in place on the fuselage. When fastened in place use a sandpaper block to trim the sides and top and bottom before fitting the other sheets in place to complete the fuselage structure. Use cement liberally to hold together. When dried, trim with knife or plane to the proper shape and outline. Sand to a smooth finish. Make or obtain a one-ounce capacity team racing tank similar in shape to the one on the plans—a tin-plate tank was used. The two air vents protrude above the fuselage top. Install the tank into the fuselage as shown and cement liberally, shimming the tank in position where necessary.

The tail assembly fits into slots in the fuselage as shown. The elevator has a control horn attached by means of a bolt as shown. The push-pull control rod is then slid into the control horn and held secure with a washer soldered to the rod. The stabilizer and elevator are then assembled with cloth hinges and cemented to the fuselage. The rudder is then installed into the fuselage and cemented in place. Sand these surfaces before installation to a streamlined shape.

The cowl is made in two parts, the lower portion is built as part of the fuselage by cementing very soft blocks of balsa in place as shown and sanded to shape—hollowing where necessary. The engine is then mounted in place and the shut off mechanism fitted so that it works freely. Set the mechanism to operate as previously noted. Cover over the engine intake and exhaust ports with scotch or masking tape now so that the pressure cowl can be made. Carve the 2 cowl sides to shape as shown from very light balsa. Follow the detailed section on the plans. Cement wax paper between the cowl sections and the lower half of the cowl then allow to dry. Make sure that the cowl sides fit very snug around the engine—so that the incoming air will be forced through the cooling fins of the engine. Next, cement the rear former of the cowl in place then attach the top section to complete the basic assembly of the cowl. When thoroughly dried, trim the cowl to a smooth contour.

Pry the cowl loose from the fuselage making sure that it is pried loose only at the wax paper joint. Fit the small piece that fills the front of the cowl between the two sides. The exit ducts in the cowl are made from 1/16" sheet and cemented inside the cowl, soak the one sheet that will have to be twisted slightly (in order to follow the contour) so that it can be bent easily then cemented in place. After the whole assembly has dried thoroughly, fit and cement the two wood dowels to the lower section of the cowl and drill two holes in the upper cowl to match. Fit the cowl in place again and finish sanding to a smooth even contour.

Prepare to finish the Challenger with 3 coats of sanding sealer and sanding between coats. Painting and finishing the model can vary depending upon individual taste. The original model looked sharp with a Willow Green fuselage and Aircraft Cream wing and tail surfaces. The cockpit is cut out as shown, a Deco Pilot can be cemented in the fuselage, and a plastic canopy cemented in place. Decorate the model with various decals or other decorative schemes you may dream up—the more colorful the better. If a glow engine is used, fuel proof the complete model with your favorite fuel proof. For diesel engine operation clear dope only is required.

Fly the model on 60-foot lines. This model is pretty fast and needs a nice smooth area to fly from. It will take off and land on grass—but why risk it? When built according to the plans the model should balance on the very forward portion of the wingtips—forward of the front lead out. Weight can be added to the outboard tip if the model shows any tendency to bank inwards on take-offs or landings. A small amount of offset rudder will remedy this situation. You will find this model an easy plane to handle and one which will really fly "in the groove." After you've flown your first race you'll be 'hot' after the next race, and boy, then you are gone. So now you have a challenge before you. And a Challenger to answer it.

THE END

Planes in the News

(Continued from page 15)

newsmen who had once made him an idol helped to tear down the image.

But there was always one adventure more in the air. And Lindbergh was a flier's flier—he couldn't stay away from the lure of altitude and speed and the feel of stick pressure. So he went out to the Pacific in the second war, to instruct the young Army Air Corps pilots in cruise control on P-38 Lightnings. Still slim, but balding and fortyish now, Lindbergh flew on combat missions with his boys. And, says the story, on one of these missions a Nipponese flier decided to tangle with the Lone Eagle. That was the Nip's last challenge. Lindbergh outclassed him, gave him a short burst or two, and the Jap went down flaming.

Twenty-five years ago is a far piece back in time. I was a kid of seven, impressed and mightily amazed by the whole thing. And my mother and I very carefully framed a telegram to Lindbergh, congratulating him on the flight. I can remember calling it in now, using the phone that stood on the desk in the hall. And I remember the acknowledging card which came some weeks later with a picture of Lindbergh and his airplane, the "Spirit of St. Louis." On the back, it said that it was impossible for Col. Lindbergh to answer each letter personally, but that he had directed the writer of the card to thank me for my correspondence. I was thrilled.

And twenty-five years later, I'm still thrilled. The guy was a hero to me then, and he hasn't done anything since to change that standing.

► The Century Mark—Air Force fighter designations have finally broken the one-hundred mark. Recent unofficial announcements by USAF give the F-100 number to a Sabre variant, F-101 to the production McDonnell F-88, and F-102 to the Convair 1954 interceptor.

The new F-100 Sabre differs basically in wing and powerplant, both changes being aimed at higher speeds. Sweep of the F-100 wings is to be 45 deg., 10 degrees more than the current Sabre F-86 sweep. And the new craft will be powered by the big Pratt & Whitney J-57 turbojet.

McDonnell's XF-88A, about which we wrote and drew a few months back, gets a new number in its production version. The Army is strongly behind the orders for this plane, because the Voodoo is supposed to be just the thing for ground support. It has the longest range of any of the contemporary jet fighters (which can also mean long time over the target, a fetish with some advocates of ground support) and it is certainly one of the fastest.

XF-102 is the designation for Convair's latest effort in the field of unique aircraft. Reported to resemble the firm's earlier XF-92 delta-winged fighter, first in the world to fly, the XF-102 is aimed at a target flight date of 1954. You remember the plane—it's to be mostly missile with the pilot along simply to monitor the electronic controls.

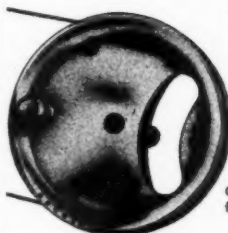
► Navy's Newest—Not to be outdone, the Navy swung a broadside into action on a recent television show. Seeking recognition as a service well aware of the value of airplanes, Asst. Secretary of Navy for Air Floberg appeared before the cameras with a handful of models of the latest Navy types—types which until a few minutes before had been classified. What did he show? Six new aircraft, including one helicopter.

Probably the hottest plane of the bunch was the new Douglas XA3D-1, a twin-turbo, jet, sweptwing, carrier-based bomber. This craft is the heaviest (77,000 lb.) contemplated by the Navy for carrier use, and will be ready for fleet duty about the time the super-carrier Forrestal is ready. Powerplants for the Douglas job will be two Westinghouse J-40 turbojets with afterburners; their thrust is expected to kick the XA3D along somewhere between 600 and 700 mph. Crew of three will be required; wings will fold for storage. And as an instance of inter-service cooperation, the Air Force has announced that it is also procuring the XA3D in a recon-bomber version to be designated B-66. But AF's version will use GE engines. (Incidentally, the weight of the XA3D gives some clue as to the thrust of the J-40. As a rough rule, the thrust of a

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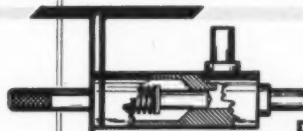
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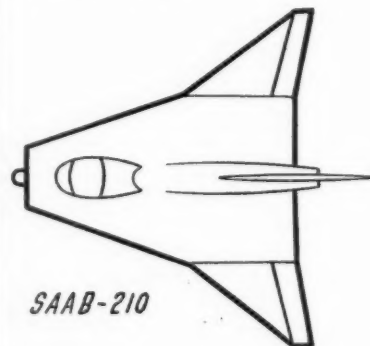
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current jet aircraft is about one-quarter the total weight of the plane. Using this, we get a total of about 19,000 lb. thrust from two engines, which is, of course, 9,500 lb. thrust per engine.)

The Navy took the Grumman Panther, swept the wings, and got a Cougar. And they called it the F9F-6. It's been batting over Long Island on regular runs (frequently seen by all the modelers at Hicksville), but the TV show was the first official showing. In side view, it's still a Panther, but in plan view, you notice the wing sweep and horizontal tail sweep. You'll see the big fillet at the wing-fuselage intersection, and see the way the leading edge has been pulled forward around the duct inlet. It has been reported that the plane uses the Pratt & Whitney F48 engine, which puts out about 6,250 lb. static sea level thrust (officially). This engine was also used in the F9F-5 Panther which was a fast airplane. With the Cougar airframe, the engine should be able to push the -6 to over the 650-mph. speed level.

Next "revelation" by Floberg was the North American FJ-2, which is to all intents and purposes, a Navy Sabre. But its choice rounds out a cycle which started with the FJ-1 Fury, straight-wing jet developed by NAA for the Navy right after the war. It flew, went through carrier trials, was ridiculed in the British press aviation press and then (not because of the ridicule) dropped out of sight. It reappeared in the Air Force's F-86 Sabre, which was nothing more than a redesigned Fury with lots of changes and a sweptwing. Now the Navy wants some of that, too, and so they have taken back the design and christened it the FJ-2 Fury. It will have folding wings, arresting gear and other Navy mods.

Floberg also showed his avid audience models of the Bell XSHL-1 anti-submarine helicopter, the McDonnell F3H-1 Demon and the Vought F7U-3 Cutlass. And he is reported to have left the viewers with the feeling that Navy was not only on the airpower ball, but had invented the sphere.



► Bigger, Better Banshee — McDonnell's fine house organ, the Anscoor, came through with a picture of a new Banshee version a month or so back. The first change that strikes you when you see the picture is that the nose has been lengthened, presumably for additional fuel. The second thing you notice is the new horizontal tail, with dihedral. McDonnell says that the picture shows an aerodynamic prototype, which means that you see the general outline form of the airplane, and the production version will be different only inside. In addition to more fuel, the new Banshee, designated F2H-3, carries heavier armament (which means either six 20mm. cannon or heavier caliber stuff) and improved radar installations. Altogether, the new Banshee is a handsome beast—and isn't McDonnell doing nicely?

► Delta Draken — Nowadays it's a sin not to be flying a delta-winged plane for some reason or other. And the most recent addition to the ranks of the flying triangles is the Saab 210 Draken, research craft for the Swedish Air Force. To me, this is the prettiest delta since the cerulean blue Avro 707 first flew.

Draken—which stands for Kite, and not the expected Dragon—is sort of a delta-not-a-delta. Or maybe it's two deltas. Anyway, the wing planform looks like this:

The new Saab design is a tiny plane—the

size of the cockpit gives that away. And the British magazine *FLIGHT*—closer to these things than we are—reports that the engine is the Armstrong Siddeley Adder turbojet.

Draken has a solid nose with two cheek inlets for its engine placed far forward. The intimation here is that the nose is being reserved for radar. Passing the cockpit, the next prominent feature is the vertical tail, of low aspect ratio.

All units of the tricycle landing gear retract forward, apparently with the main wheels making a 90-degree turn as they do so, to lie flat within the wing contour.

Just below the rudder is a faired container for a braking parachute, now standard practice on deltas.

Sweden deserves a great deal of credit from the aeronautical fraternity for the design of this complex little plane. Saab Aircraft Co. was faced with a difficult task, because neither we nor the British have been what might be called free with our information on the types. So Sweden had to go ahead without the benefit of others' tests. This meant extra effort in research and development, which can only be bought for extra money. So a salute to Saab for a clever design, well-executed.

Rich and Lean

(Continued from page 34)

I mix my own fuel and the mixture is as follows: 8 parts ether, 6 parts castor oil and 4 parts kerosene. This seems to be an ideal mixture as it works in every diesel we've ever tried.

Robert Linn

Los Angeles 45, California

Count On Us, Boy

It is still too soon for me to make a comprehensive report on the response to my recent letter concerned with the promotion of indoor flying. However all of those who have replied so far have seen the problem in the same light and have proposed what is substantially the same solution. It is the feeling of several people that there is no place for the beginner to enter indoor flying. He must be capable of building an 0.045 oz. C stick or be left hopelessly behind. It was suggested that AMA establish a simplified indoor category, perhaps for medium-sized ROG stick models with a minimum weight requirement. The average builder could put such a ship together with no trouble. The weight would be such that paper covering could be used.

Such an event would open the door to indoor flying to many new flyers, and those who were interested would then continue on to become expert in microfilm flying. This simplified class would be a supplement to, not a substitute for the present microfilm events, which are ideal for expert competition.

If this solution is attractive to enough people it might be highly desirable to hold the event, on a trial basis, at the 1952 Nationals. I hope that I will have MAN's support in such an undertaking.

George De La Mater

Kirkwood Thermaleers, Missouri

Is There a Piston in the House?

Can you help me find a piston or two for an Atom? I've got an old Atom that runs great on glo-fuel but the piston blew its top. I'm having trouble finding a piston; any help you can give me will be appreciated immensely.

Don Santee
Salem, Oregon

This Goes on All the Time

Would you please let me know what material is available on building model planes?

Alan Turpel

Stoneham, Massachusetts

AMA Knows All

We are attempting to organize a model aircraft club and would appreciate the address where we can obtain all the rules and regulations for all types of models, pertaining to contests. Your assistance in this matter would be sincerely appreciated.

H. S. Lorimer
Brockville, Ontario

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Features "Autotrol" rudder operation, eliminating slack control lines in critical maneuvers.



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30" Wingspan—For .23 to .36 Engines

This new Air Force trainer makes a perfect stunt-scale design. Tricycle gear, pre-fab.



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40 $\frac{3}{4}$ " Wingspan—For .29 to .65 Engines

Engine throttle control, fully automatic wing flaps, shear-pin mounts and die-cut parts.

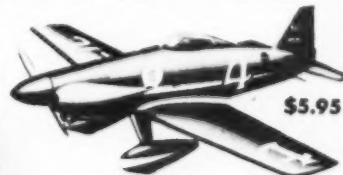


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37" Wingspan—For .19 to .36 Engines

Features retractable-extensible landing gear, throttle, flap, elevator and rudder control.



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28" Wingspan—For .09 to .36 Engines

This 1 $\frac{1}{2}$ " scale Goodyear racer features "Step Keel" construction. Meets Team Racing rules.



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- Super-Aerotrol has been tested under the Academy of Model Aeronautics special license in various parts of the country for nearly a full year. In addition "Super-Aerotrol" has been sent to England for tests on their license-free band. Here is what the experts say:

BILL WINTER—Editor of MODEL AIRPLANE NEWS says:

"Put together an Aerotrol Kit . . . the results were startling . . . worked right off the bat."

PETER CHINN—technical writer for "MODEL AIRCRAFT" of "England" says:

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WARREN BARTLETT—test flying Super-Aerotrol on Academy of Model Aeronautics special license K02XDA says:

"First flights peachy . . . receiver checked out perfectly adjusted."

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Includes Transmitter, Receiver, Escapement (less batteries and tubes).

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58" Wingspan—For .19 to .36 Engines

Especially designed by Henry Struck for Radio Control and PAA-Load flying. Plans show details for installation of equipment. Pre-fabricated.

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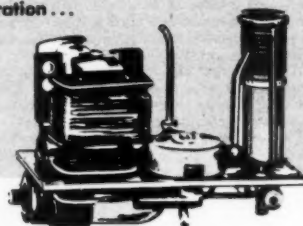
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DUST-CORE TUNED Super Aerotrol RECEIVER

- Operates on either 27.3 or 52 mc.
- NEW super-sensitive relay.
- NEW "locked-channel" dust-core tuning. (We have shipped the sample receivers across the country and to Europe without the frequency changing!)
- Light in Weight, 2 1/4 oz. less batteries.
- Simple super-regenerator circuit, 100% dependable.

Kit includes: Finished, tested sensitive relay; finished dust-core tuner; drilled bakelite base with condensers and eyelets attached; all electrical components, condensers, resistors, coils, chokes and potentiometer; all necessary contacts, and color-coded wiring. Can be assembled in less than two hours. Complete building and operating instructions are included.

Kit—\$13.95

Crystal-Controlled Super Aerotrol TRANSMITTER

- Operates on 27.355 mc.
- Completely portable—Self contained—No separate antenna—No external Batteries!
- Weighs 3.5 lbs. complete!

Kit includes all necessary parts (except tube and batteries): Precision Ground Crystal; Painted Metal Cabinet; Finished Sectional Antenna; stamped and formed chassis with all holes punched; all necessary components, resistors, condensers, coils and chokes; color coded wiring. Can be assembled in less than two hours. Complete building and operating instructions are included—

Kit—\$21.95

*Prices and specifications subject to change.



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IT'S A REAL BUY...HERE'S WHY

Life expectancy of the average glow plug is short because of extreme hot and cold temperatures contacting the platinum element. The white hot element is constantly bombarded by cold fuel causing rapid expansion and contraction which quickly disintegrates the element. K&B's new Glow Plug with Life Stretcher Shield protects the element from the cold fuel...retarding expansion and contraction...thereby adding as much as 5 times to its normal life.

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